

**Ministry of Energy and Mines**  
BC Geological Survey

**Assessment Report**  
**Title Page and Summary**

**TYPE OF REPORT [type of survey(s)]:** Technical Assessment Report

**TOTAL COST:** \$5342.00

**AUTHOR(S):** Hans Smit, P.Ge

**SIGNATURE(S):** 

**NOTICE OF WORK PERMIT NUMBER(S)/DATE(S):** \_\_\_\_\_

**YEAR OF WORK:** 2014

**STATEMENT OF WORK - CASH PAYMENTS EVENT NUMBER(S)/DATE(S):** 5552412/April 24, 2015

**PROPERTY NAME:** Century Limestone

**CLAIM NAME(S) (on which the work was done):** Inlet, Inlet 2, unnamed

**COMMODITIES SOUGHT:** Limestone

**MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN:** 092E081 and 092E020

**MINING DIVISION:** Alberni

**NTS/BCGS:** 092E/15, 092E/16

**LATITUDE:** 49 ° 46 '00 " **LONGITUDE:** 126 ° 30 '00 " **(at centre of work)**

**OWNER(S):**

1) 279155 (Opus Ventures Ltd.)

2) \_\_\_\_\_

**MAILING ADDRESS:**

PO Box 556

Gold River, BC V0P 1G0

**OPERATOR(S) [who paid for the work]:**

1) Sonoma Resources Inc.

2) \_\_\_\_\_

**MAILING ADDRESS:**

1100 - 1111 Melville Street

Vancouver, BC V6E 3V6

**PROPERTY GEOLOGY KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude):**

limestone, Vancouver Island, Quatsino Formation, Karmutsen Formation, Washington Plutonic Suite, mafic dykes, magnesium oxide (MgO), calcium oxide (CaO)

**REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS:** 28386 and 28915

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	PROJECT COSTS APPORTIONED (incl. support)
<b>GEOLOGICAL (scale, area)</b>			
Ground, mapping	_____	_____	_____
Photo interpretation	_____	_____	_____
<b>GEOPHYSICAL (line-kilometres)</b>			
<b>Ground</b>			
Magnetic	_____	_____	_____
Electromagnetic	_____	_____	_____
Induced Polarization	_____	_____	_____
Radiometric	_____	_____	_____
Seismic	_____	_____	_____
Other	_____	_____	_____
<b>Airborne</b>			
_____	_____	_____	_____
<b>GEOCHEMICAL (number of samples analysed for...)</b>			
Soil	_____	_____	_____
Silt	_____	_____	_____
Rock	15 samples	_____	1110.24
Other	_____	_____	_____
<b>DRILLING (total metres; number of holes, size)</b>			
Core	_____	_____	_____
Non-core	_____	_____	_____
<b>RELATED TECHNICAL</b>			
Sampling/assaying	Support costs	_____	3242.00
Petrographic	_____	_____	_____
Mineralographic	_____	_____	_____
Metallurgic	_____	_____	_____
<b>PROSPECTING (scale, area)</b>			
_____	_____	_____	_____
<b>PREPARATORY / PHYSICAL</b>			
Line/grid (kilometres)	_____	_____	_____
Topographic/Photogrammetric (scale, area)	_____	_____	_____
Legal surveys (scale, area)	_____	_____	_____
Road, local access (kilometres)/trail	_____	_____	_____
Trench (metres)	_____	_____	_____
Underground dev. (metres)	_____	_____	_____
Other	Report writing	_____	1000.00
		<b>TOTAL COST:</b>	<b>5352.00</b>

**Print Form**

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Geochemical Sampling Report  
on the  
Century Limestone Property  
British Columbia, Canada

Alberni Mining Division

Latitude 49° 46' 00" North, Longitude 126° 30' 00" West  
(UTM NAD 83 Zone 9 680000E 5515700 N).

NTS Map Sheet 092E/15 and 092E/16

Event # 5552412

Prepared for:

Sonoma Resources Inc.  
1100 - 1111 Melville St.  
Vancouver, B.C. V6E 3V6

Prepared by:

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July 23, 2015

BC Geological Survey  
Assessment Report  
35545

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## Summary

The Century Limestone property is comprised of six (6) claims covering 1,941 ha. It is located at tidewater on the west coast of Vancouver Island, within Nootka Sound. The property lays approximately 31 km west-southwest of Gold River, straddling NTS map sheets 092E/15 and 092E/16. The property center is at approximately latitude 49° 46' 00" North and longitude 126° 30' 00" West (UTM NAD 83 Zone 9 680000E 5515700 N).

All claims are 100% owned by Opus Ventures Ltd., a private company with its main office located in Gold River, B.C. The claims are subject to an option agreement dated March 3, 2014 with Sonoma Resources Inc., a public mineral exploration company with its main office in Vancouver, B.C.

Century is being explored for its potential to be a marine-accessible source for limestone. Potential uses for limestone include cement, lime for agricultural and industrial applications and aggregate. Major considerations in economic evaluations of limestone are transportation, chemical composition and ease of mining.

Access to the property area by vehicle is by driving from Gold River on the road to Tahsis (Head Bay Road) for 48 km. This gravel road is open to the public and maintained for all season use. At 48 km, the Head Bay Main logging road connects to the Tahsis road. The center of the property is 11 km along the Head Bay Main road. A number of subsidiary logging roads provide access throughout the property.

The main rock type underlying the Century Limestone property is the Upper Triassic Vancouver Group Quatsino Formation limestone. Stratigraphically older Upper Triassic basalts of the Vancouver Group Karmutsen Formation are in fault contact with the limestone in the northeast part of the property. Stratigraphically younger calc-alkaline volcanics of the Bonanza Group occur in the northwest part of the property.

A body of quartz diorite of the Eocene to Oligocene Washington Plutonic Suite intrudes the limestone in the southeast part of the property. Maps by the BC government show only a small corner of this intrusion within the boundary of the property; however, mapping by Doublestar shows the contact continuing in a northwest direction for a considerable distance into the property on the east side.

Late, fine-grained mafic dykes cross cut the limestone throughout the property. The dykes are dark green to black and generally less than 1 to 3 m wide. Some +5 m dykes were observed.

The economic target on the property is the limestone. Minor sulphides were observed in 2014 along dyke margins. No sulphides were noted away from the dykes and ICP results show low metal contents in limestone samples.

Exploration work in 2014 was undertaken to better quantify the variability of the limestone chemistry, especially with respect to magnesium oxide (MgO) content. Work was focussed on the area in the east part of the property where there is an existing barge and log dump facility and where topography would facilitate the development of an open pit.

In total, 15 samples were taken in 2014. Silica oxide (SiO<sub>2</sub>) contents ranged from 0.15 to 2.01%. For the ten (10) samples taken in the east part of the property, the average was 0.6%. MgO results ranged from a low of 0.41% to a high of 19.88%. The average for the samples in the east part was 7.33%. Calcium oxide (CaO) ranged from 32.08 to 55.14%, with an average of 47.56% for the samples in the east part. Results for other whole rock parameters were low, as were trace elements and metals.

On a road that transects stratigraphy, a 1 to 3 m, locally to 5 m, wide dyke was observed approximately every 25 to 30 m. Dykes generally trend NW and have steep to vertical dips.

There is a large volume of limestone on the Century claims proximal to deep tidewater. The area in the east part of the property appears to be most favourable for the development of a limestone quarry and barge or ship loading facility. Results from samples taken in this area in 2014 indicate that the content of SiO<sub>2</sub> and other major oxides, excepting MgO, is favourable. The content of potentially deleterious metals is low. The average MgO content of 7.6% in the samples indicates that the limestone in this area is not suitable for cement or many chemical lime applications. The frequency of dykes in the area would make mining a pure limestone product difficult.

Additional sampling in other areas west of, or to the south and uphill of, the 2014 sampling may find suitable zones with low MgO reasonably proximal to tidewater. If the contact of the Washington Suite quartz diorite extends as far north as the Doublestar mapping shows, the limestone potential to the south of the 2104 sampling is limited compared to the potential if the contact is as shown on BC government maps.

Access to tidewater is a very positive attribute to the property and makes aggregate and/or armour stone potential products that could be made from the limestone. There are a series of tests commonly done to see if material could be suitable for aggregate. Before money is spent on testing, a preliminary marketing study should be undertaken to see if there are any potential markets for aggregate that could be accessed competitively from Century Limestone.

Total expenditures on the Century Limestone project that can be applied for assessment credit during 2014 were \$5,352.00

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## 1.0 Introduction

The Century Limestone exploration project is comprised of six (6) contiguous mineral claims located adjacent to tidewater within Nootka Sound west of Gold River, Vancouver Island, British Columbia. Access to the area is via the Head Bay Road that connects Gold River and Tahsis, which is maintained year-round. The property is accessed by a logging road (Head Bay Main) that connects with the Head Bay Road 48 km road distance from Gold River. Most of the property has been logged and various roads transect the property. The property can also be accessed by water and an existing barge and log loading facility is located in the east part of the property. The three-phase power line between Gold River and Tahsis runs along Head Bay Road and is within 5 km of the property.

Century is being explored for its potential to be a marine-accessible source for limestone. Potential uses for limestone include cement, lime for agricultural and industrial applications and aggregate. Major considerations in economic evaluations of limestone are transportation, chemical composition and ease of mining.

The Century Limestone claims are 100% owned by Opus Ventures Ltd. a private company based in Gold River, BC. The claims are subject to an option agreement dated March 3, 2014 with Sonoma Resources Inc. (Sonoma), a public company based in Vancouver, BC.

One claim within the group was staked in October 2004 and the rest were acquired by map staking in April 2005. Doublestar Resources Ltd. had an interest in the property and completed 18 line-km of magnetic surveys and collected and analyzed 898 rock samples in 2005 and 2006. No further work has been recorded on the property up until the work described in this report.

On February 11, 2014, four rock samples were taken on the Century Limestone property during an initial examination of the property. Only the analytical costs for these samples was applied to assessment work requirements. No travel, field or personnel costs were applied from this day. On August 21, 2014, one day was spent on site collecting samples for geochemical analysis. Travel, field, personnel and analytical costs for this work were applied to assessment work. This report details the work completed in 2014, the results thereof and recommendations for further work.

This report was supplemented by published assessment reports, the Minfile database and online Map Place ([www.mapplace.ca](http://www.mapplace.ca)). Studies are also referenced that document bedrock mapping, deposit mapping, and geological fieldwork conducted by the Geological Survey Branch of the British Columbia Ministry of Energy, Mines & Petroleum Resources.

Figures illustrating 2014 work and results are included in the body of the report. Additional files of figures that will print to scale are in Appendix IV. Figures that are property scale or larger are in NAD83 BC Albers to match with BC MapPlace maps. Detailed sampling maps are in NAD83 UTM Zone 9 to match GPS readings from sample locations.

Analytical certificates are included Appendix I and lab methodologies in Appendix II.



Author Hans Smit, P.Geo., was a corporate director of Sonoma at the time the work described herein was performed, but ceased to be a director of the company on October 31, 2014. Smit was on site and directed the 2014 sampling.

## 2.0 Location and Access

The Century Limestone property is comprised of six (6) claims covering 1,941 ha. It is located at tidewater on the west coast of Vancouver Island, within Nootka Sound (Figure 1). The property lays approximately 31 km west southwest of Gold River, straddling NTS map sheets 092E/15 and 092E/16. The property center is at approximately latitude 49° 46' 00" North and longitude 126° 30' 00" West (UTM NAD 83 Zone 9 680000E 5515700 N).

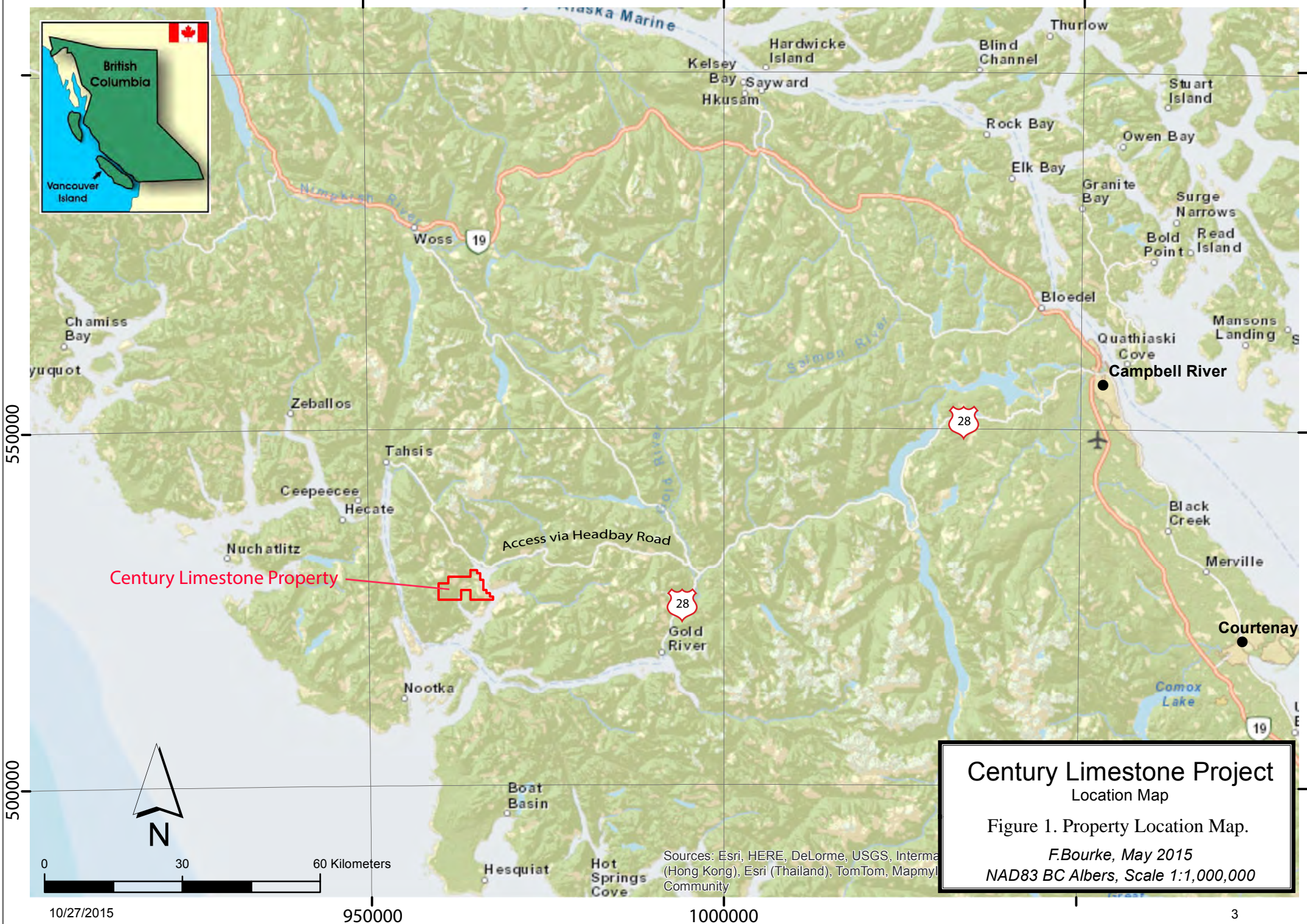
Access to the property area by vehicle is by driving from Gold River on the road to Tahsis (Head Bay Road) for 48 km. This gravel road is open to the public and maintained for all season use. At 48 km, the Head Bay Main logging road connects to the Tahsis road. The center of the property is 11 km along the Head Bay Main road. A number of subsidiary logging roads provide access throughout the property.

Gold River, population approximately 1,300, is 89 km west of Campbell River via paved highway. The village was built to house workers at a now closed pulp mill. The former pulp mill site provides a deep-sea port and potential industrial site. Basic services are available in the village. A three-phase power line from Gold River to Tahsis runs within 5 km of the Century Limestone property.

The property is within the traditional territory of the Mowachaht/Muchalaht First Nation.

Much of the property has been logged off in the recent past, and logging continues to date. Logging roads and trails provide readily accessible areas for a surface drill or excavator trenching program. A barge landing and log dump is located on the west side of the property.

There are no recreational facilities, private land holdings or known hiking trails on the property.



Sources: Esri, HERE, DeLorme, USGS, Intermap (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, Community

### 3.0 Physiography and Climate

The Century Limestone Property is located on the west coast of Vancouver Island adjacent to tidewater. Topography is rugged in the west and southeast parts of the property, with elevations ranging from 0 to 750 m. The central and northeast parts of the property have more gentle topography, though small steep slopes are common. Deserted Lake (surface elevation 5 m) lies in the center of the claims.

The property area would have been blanketed by thick coastal forests at one time; however, most of the area has been clear-cut and now stands of second-growth trees predominate. In many areas, logging activities were fairly recent and the second growth is very dense. This results in difficult walking off of the logging access roads.

Roads, trails and landings from logging activity provide easy access to most parts of the property and provide good rock exposures.

The climate in the area is classified as West Coast Marine, with mild wet winters and warmer and drier summers. Average low temperatures range from  $-1^{\circ}\text{C}$  in January to  $11^{\circ}\text{C}$  in July and August. Average high temperatures range from  $5^{\circ}\text{C}$  in January to  $25^{\circ}\text{C}$  in July and August. Average monthly precipitation ranges from approximately 50 mm per month in the summer to a high of 490 mm in November. ([www.climate.weather.gc.ca](http://www.climate.weather.gc.ca)). Snow occurs sporadically in the winter, generally melting quickly near the water but in some years accumulating at higher elevations. Exploration and development could be undertaken year-round.

Wildlife in the area includes wolf, black bear, deer, cougar, beaver, lynx, bobcat, and many species of birds.

### 4.0 Property Status & Ownership

The Century Limestone property is comprised of six (6) contiguous mineral claims totaling 1,941 ha (Figure 2). One claim, title number 512519, was ground staked and then subsequently converted to a map-grid claim. The other claims were staked on-line. The individual claims, size and their respective anniversary dates are shown below in Table 1.

All claims are 100% owned by Opus Ventures Ltd., a private company with its main office located in Gold River, B.C. The claims are subject to an option agreement dated March 3, 2014 with Sonoma Resources Inc., a public mineral exploration company with its main office in Vancouver, B.C. Under the terms of the agreement, Sonoma may earn a 100% undivided interest in and to the property. Sonoma must incur annual exploration expenditures of \$100,000 per year for three years (cumulative total \$300,000) in order to maintain the option. Thereafter, Sonoma is required to pay an annual \$40,000 per year advance royalty to Opus. Sonoma can acquire a 100% interest from Opus at any time within a four (4)-year period of the agreement date by issuing Opus 500,000 Sonoma shares and granting a production royalty of \$0.35 per

tonne on the first 1 million tonnes of production and \$0.20 per tonne on any subsequent production.

There are no other agreements, liens, judgments, debentures, royalties, or back-in rights known to the author.

The property is located in the asserted Traditional Territory of the Mowachaht/Muchalaht First Nation.

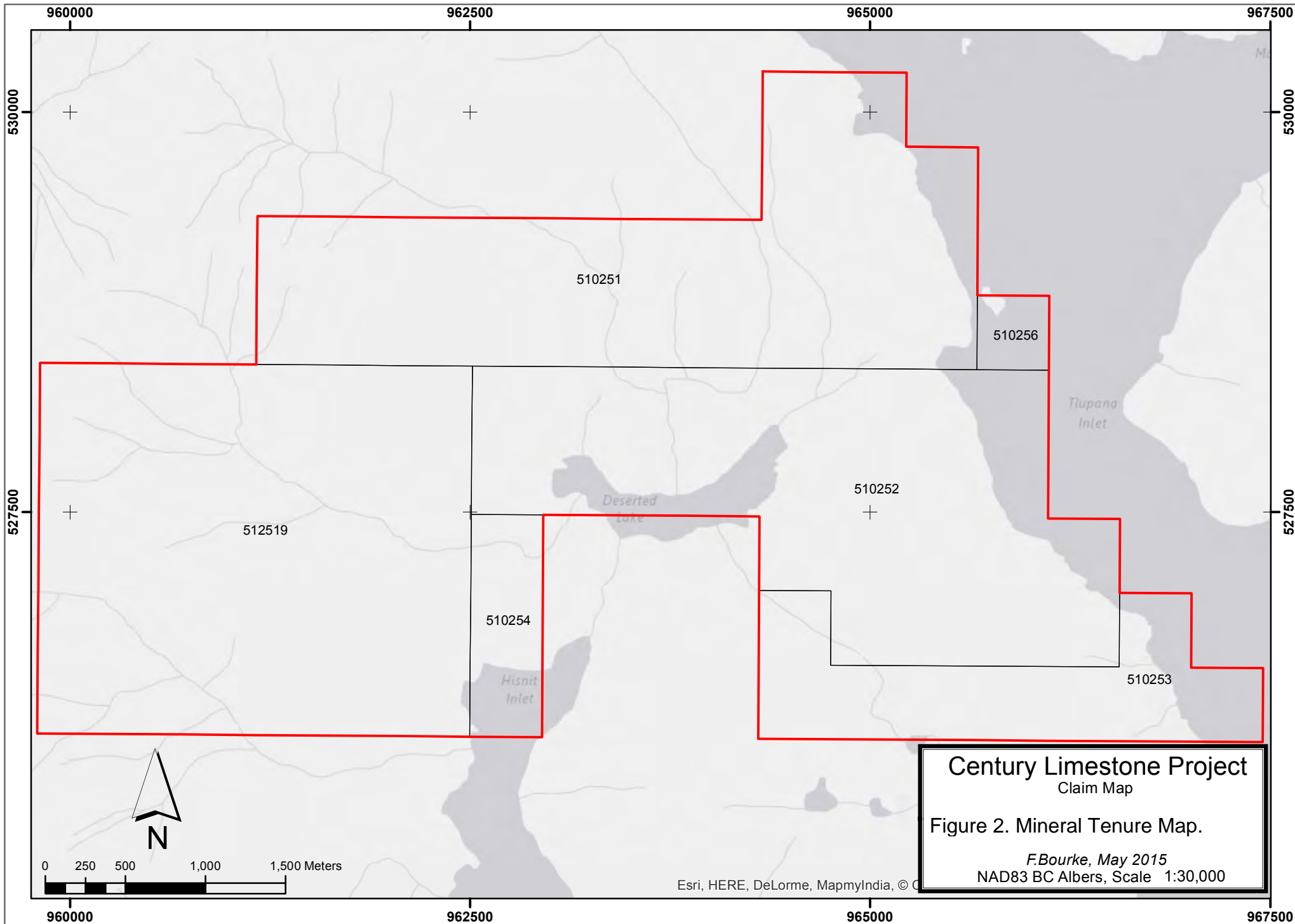
The property is within the operating forestry tenure of Western Forest Products Inc.

Exploration work in 2014 did not result in any physical disturbance. Previous exploration work also did not result in any physical disturbance.

**Table 1. Mineral Tenure Details**

<b>Title Number</b>	<b>Claim Name</b>	<b>Owner</b>	<b>Map Number</b>	<b>Issue Date</b>	<b>Good To Date</b>	<b>Area (ha)</b>
510251	INLET	279155 (100%)	092E	2005/apr/06	2017/sep/01	521.605
510252	INLET 2	279155 (100%)	092E	2005/apr/06	2017/sep/01	521.758
510253	INLET 3	279155 (100%)	092E	2005/apr/06	2016/sep/01	187.881
510254	INLET 4	279155 (100%)	092E	2005/apr/06	2016/sep/01	62.618
510256	INLET 5	279155 (100%)	092E	2005/apr/06	2016/sep/01	20.866
512519		279155 (100%)	092E	2005/may/13	2016/sep/01	626.135





## 5.0 Exploration History

Limited exploration has been conducted on the Century Limestone property to date. Doublestar Resources Ltd. acquired an interest in the property through an agreement signed in September 2005 with Robert Lightle, the original owner of claim title number 512519. (Lightle is a principal of Opus Venutres Ltd.). Doublestar staked the additional titles and performed exploration work in 2005 and 2006. Work consisted of surface rock sampling and limited ground geophysical surveys. The Doublestar interest was transferred to Selkirk Metals Corp. due to a corporate restructuring in March of 2009. In October 2011, title of all claims was returned to Lightle who then transferred title to Opus Ventures in February 2014.

Small pits attest to limited previous production from the area reportedly by Nootka Quarries Ltd. in 1908 and 1909 (Minfile 092E 020). A small-scale marble quarry immediately south of the property was in operation when the author was on the property.

Work by Doublestar is the only recorded exploration work on the property. The work in 2005 and 2006 is described in BC Ministry of Energy, Mines and Petroleum Resources Assessment Reports numbered 28,386 dated May 19, 2006 (Gray 2006) and 28,915 dated February 7, 2007 (Perk 2007).

Doublestar divided their exploration efforts into two areas named the Century Zone in the east part of the property and the BCD Zone in the west part of the property. Though exploration efforts were broken into two zones, limestone can be found throughout the area between these zones. Most 2014 samples were in the area referred to as the Century area in the Assessment Reports.

In 2005, 475 rock chip samples were taken at approximately 50 m centres in the two areas and 4.4 line-km of ground magnetic survey were conducted over the Century area. Content of SiO<sub>2</sub> was low and content of CaO was high in most limestone samples. MgO was found to be variable. In the Century area, the average analysis from 321 samples of limestone was 0.8% SiO<sub>2</sub>, 4.3% MgO and 50.5% CaO. The principal conclusion from the magnetic survey was that mafic dykes were spaced 50 to 100 m apart.

In 2006, a further 423 samples were taken in the two areas and an additional 13.5 line-km of surface magnetometer surveys completed. The average analysis of 415 samples of limestone was 1.0% SiO<sub>2</sub>, 4.0% MgO and 50.5% CaO. MgO content was again quite variable.

Copper, gold and silver mineralizations have been noted along the contacts of intrusions in the general area around the property. Several small prospects are described in BC MINFILE, but no significant mineralization has been reported.

## 6.0 Regional Geology

Vancouver Island is the main component of the Insular Belt, the westernmost major tectonic subdivision of the Canadian Cordillera (Figure 3). In the late Carboniferous, the Upper Paleozoic – Lower Mesozoic Wrangellia terrane accreted to the Alexander Terrance, creating the Insular Superterrane that, in turn, was pushed up against the North American continent between the Middle Jurassic and the mid-Cretaceous (DeBari, 1999).

Narrow strips along the west and south coast of the Island are fragments of the Pacific Belt that is well developed in the western United States and Alaska. Post orogenic Tertiary clastic sediments fringe the west coast (Muller, 1977).

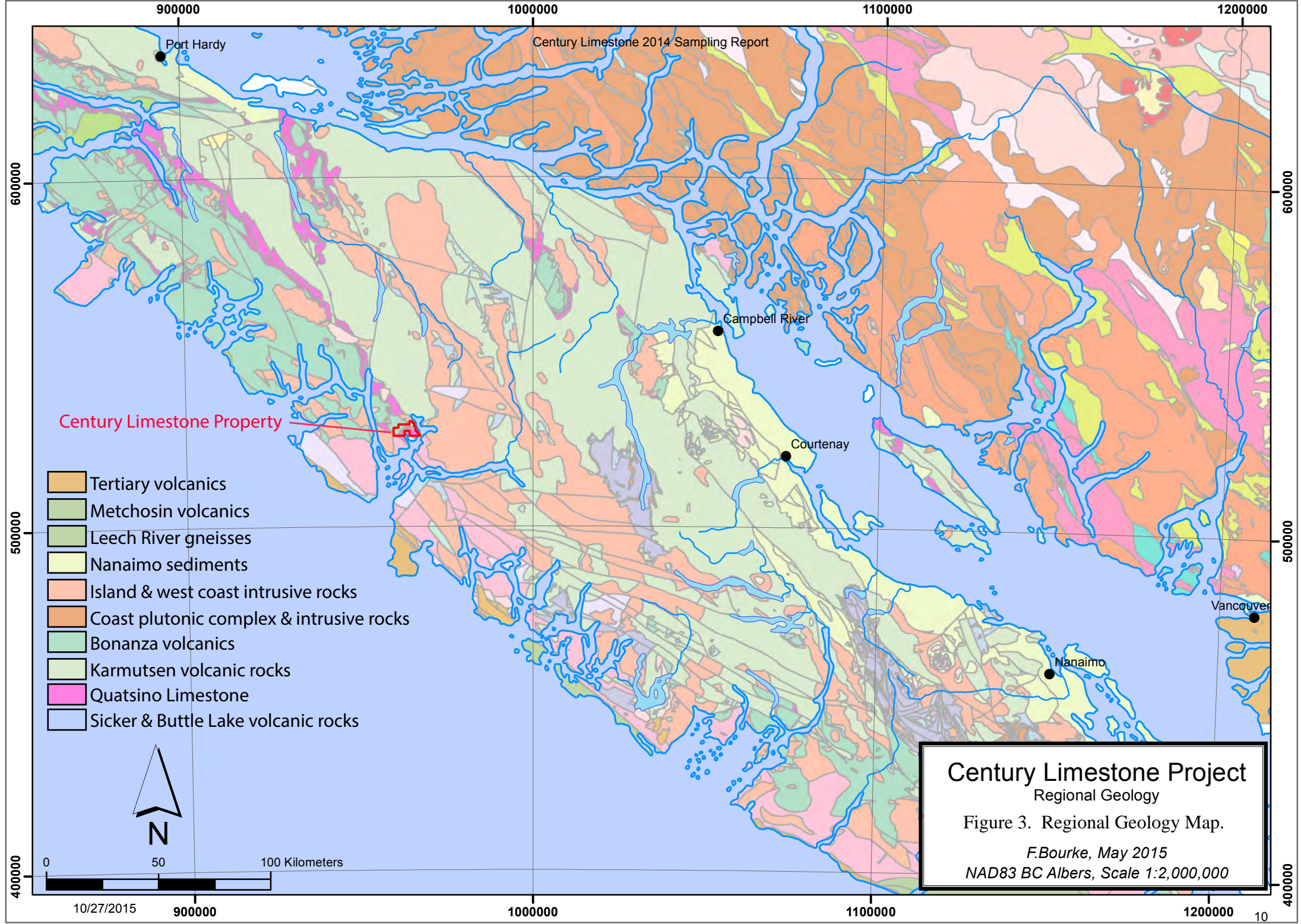
The Paleozoic Sicker Group and the Middle Triassic Karmutsen Formation (part of the Vancouver Group) are what is left of the pre-accretionary Wrangellia; the Sicker Group marine volcanics and sediments are found striking roughly NW-SE through the centre portion of Vancouver Island and are well documented in the Myra Falls area near Courtenay, BC (a well-known VMS deposit).

The central west coast of Vancouver Island is composed of several main rock types. The area surrounding the Century Property includes:

- **Late to Middle Triassic Vancouver Group:**
  - *Karmutsen Formation:* Composed of basaltic and minor sedimentary rocks, up to 6000m thick and underlying much of Vancouver Island, the Upper Triassic Karmutsen contains inter- to subtidal lime mudstone, coarse plagioclase phyric basaltic lavas and aphanitic to plagioclase phyric subaerial basaltic flows, minor pillow lava, pillow breccia and hyaloclastite (Hammack, 1994). These volcanics exhibit low-grade metamorphism except where in fault contact with Island and West Coast Intrusives (see below). This formation conformably overlies the Sicker Group (DeBari, 1994).
  - *Quatsino Formation:* Upper Triassic Quatsino Limestone is generally massive to thickly bedded and well marbleized. Overall, the Formation appears to be dipping at a moderate 45 degrees and striking 060 to 080 degrees (MINFILE 092E 020), but other orientations of bedding have been noted. The limestones are cut by late, fine-grained mafic intrusive dykes of andesite to trachyte that are commonly 1 to 3 m wide, but can be several metres wide. Generally, the limestone is clear of mineralization (MINFILE 092E 081) and conformably overlies the Karmutsen (Muller, 1977).
  - *Parson Bay Formations:* Also Upper Triassic, the Parson Bay Formation has northern and western facies. The northern facies consists of shale and siltstone; the western facies is argillaceous lime mudstone, calcareous shale, siltstone and minor sandstone (Hammack, 1994).
- **Island and West Coast Intrusive Rocks:** These crystalline diorite intrusives are in fault contact with the Vancouver Group, and both sets of lithologies have been intruded by the Eocene-Oligocene Coast (Mt. Washington) Plutonic Suite (Nixon, 1994).

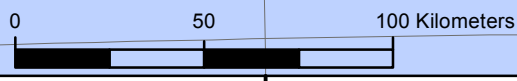
- **Lower Jurassic Bonanza Group:** Strata are intercalated basaltic to rhyolitic lavas, pyroclastic and minor epiclastic rocks. Volcanic conglomerate, breccia and cross-laminated sandstone, siltstone and mudstone are Jurassic or Cretaceous (Hammack, 1994). The Bonanza Arc formed during the accretion of Wrangelia and later tectonic tilting uplifted and preserved the Island Intrusives, the West Coast Intrusives and the Bonanza volcanics (Nixon, 1994).
- **Early to Middle Jurassic Island Plutonic Suite:** Mainly diorite, quartz diorite, monzodiorite, monzonite, quartz monzonite, granodiorite and quartz-hornblende porphyry (Hammack, 1994).





Century Limestone Property

- Tertiary volcanics
- Metchosin volcanics
- Leech River gneisses
- Nanaimo sediments
- Island & west coast intrusive rocks
- Coast plutonic complex & intrusive rocks
- Bonanza volcanics
- Karmutsen volcanic rocks
- Quatsino Limestone
- Sicker & Buttle Lake volcanic rocks



**Century Limestone Project**  
 Regional Geology  
 Figure 3. Regional Geology Map.  
*F.Bourke, May 2015*  
 NAD83 BC Albers, Scale 1:2,000,000

## 7.0 Property Geology

The main rock type underlying the Century Limestone property is the Upper Triassic Vancouver Group Quatsino Formation limestone. Stratigraphically older Upper Triassic basalts of the Vancouver Group Karmutsen Formation are in fault contact with the limestone in the northeast part of the property (Figure 4). Stratigraphically younger calc-alkaline volcanics of the Bonanza Group occur in the northwest part of the property. The contact between the Bonanza volcanics and limestone is reported to be conformable for the most part (Perk, 2007).

A body of quartz diorite of the Eocene to Oligocene Washington Plutonic Suite intrudes the limestone in the southeast part of the property. Maps by the BC government show only a small corner of this intrusion within the boundary of the property (Figure 5). However, mapping by Doublestar (Perk, 2007) shows the contact continuing in a northwest direction for a considerable distance into the property on the east side (Figure 6). Early to Middle Jurassic granodiorites of the Island Plutonic Suite are shown on BC government geology maps in the very northeast and southwest of the properties. In the southwest, undivided Paleozoic to Triassic rocks of the West Coast Crystalline Belt are also shown on these maps.

(<http://www.empr.gov.bc.ca/Mining/Geoscience/MapPlace>)

The Quatsino limestone is generally massive to thickly bedded and variably marbled. The colour is generally grey on weathered surfaces but varies from bright white to grey on fresh surfaces. Texture varies from very fine to coarse grain. Whole rock analysis indicates that the limestone contains variable amounts of MgO and very low silica, iron and manganese.

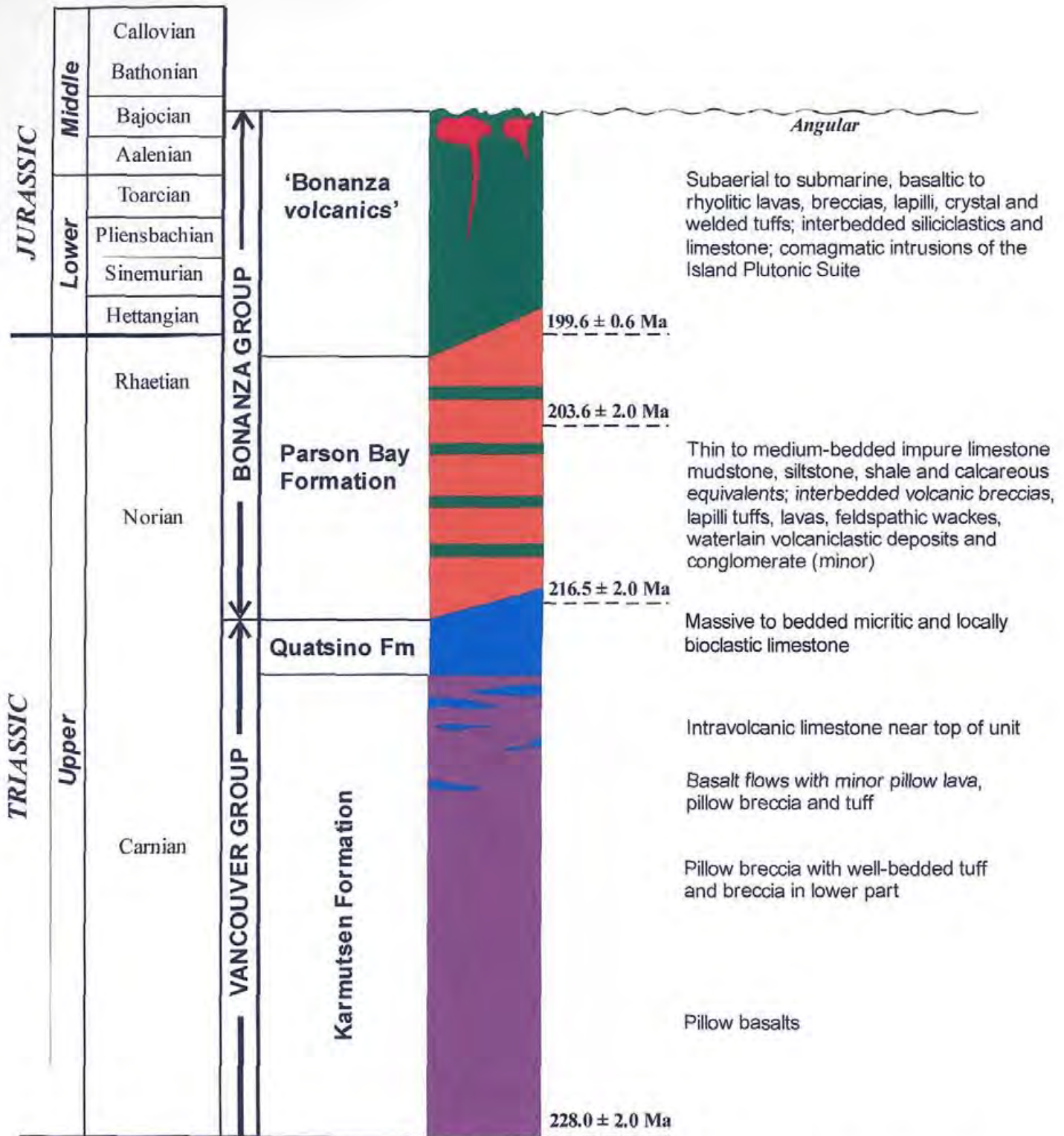
Overall, the limestone appears to trend northeast-southwest across the property, dipping moderately to the northwest. However, locally bedding has been observed with differing orientations. Folding has been noted on the property, with metre-scale open folds having an approximate fold axis dipping 50 to 60 degrees to the west (Perk 2007).

Late, fine-grained mafic dykes crosscut the limestone throughout the property. The dykes are dark green to black and generally less than 1 to 3 m wide. Some +5 m dykes occur. They most commonly strike northwest-southeast and dip steeply to vertically, but other orientations have been noted. The dykes have well developed chill margins. Where exposed in a crosscut in the small quarry south of the property, the dykes caused remobilization and re-crystallization in the limestone, but only for a few metres at most. Small pods of sulphides including pyrite and minor galena and chalcopyrite have been observed along the dyke margins.

Another interesting observation in the quarry was of broken fragments of dyke material with limestone "flowing" around the fragment. The fragments are essentially more brittle boudins with the limestone acting ductily during post-dyke emplacement deformation.

The economic target on the property is the limestone. Minor sulphides were observed in 2014 along dyke margins. No sulphides were noted away from the dykes and ICP results show low metal contents in limestone samples. Minor skarn-like mineralization has been reported along the contacts of the quartz diorite intrusion.

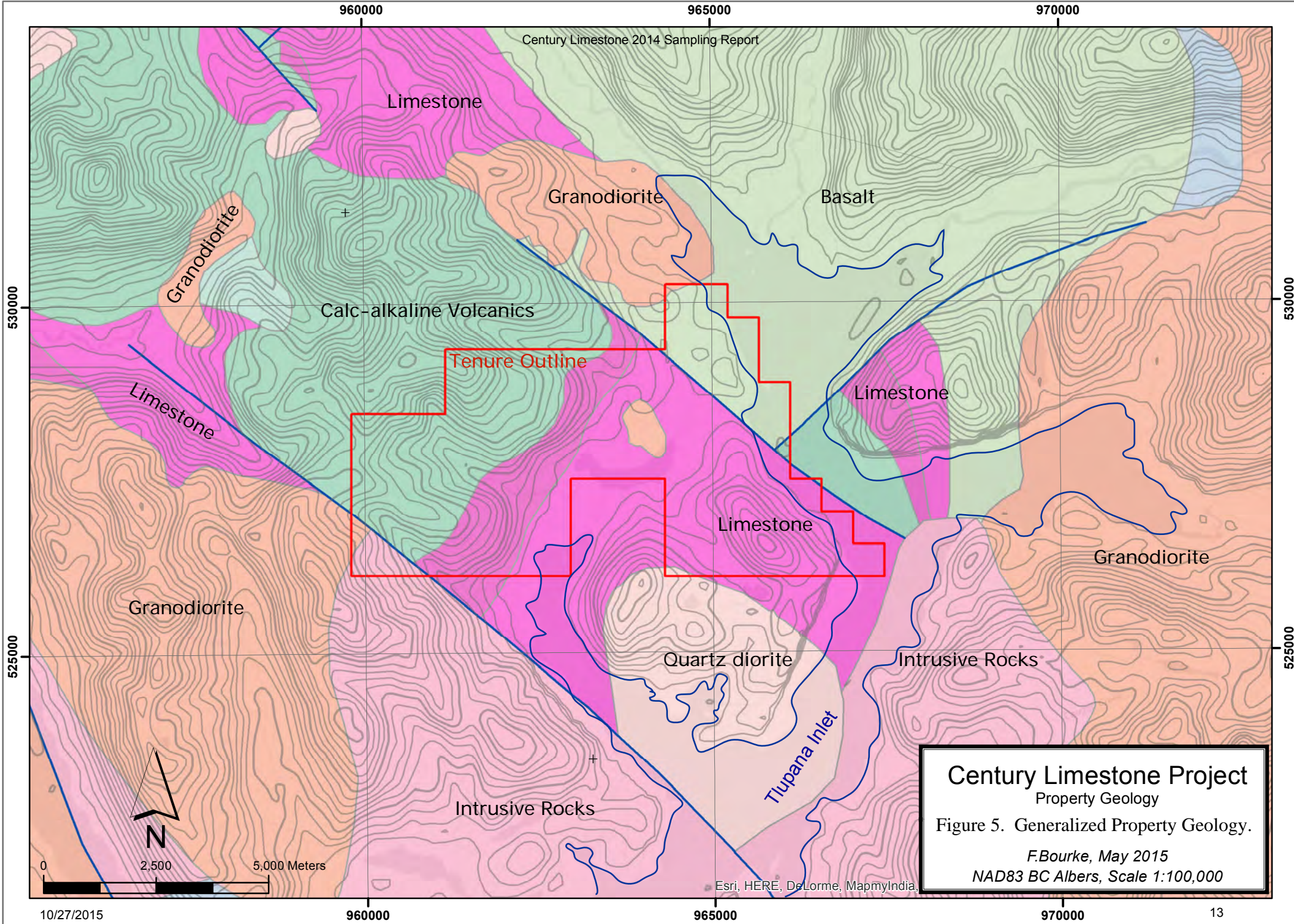




**Figure 5: Stratigraphic section for the Triassic-Jurassic Lithostratigraphic units of Northern Vancouver Island. (Nixon et al., 2006)**

Figure 4. Stratigraphic Cross-Section of Triassic-Jurassic Lithostratigraphic Units of Northern Vancouver Island (Perk, 2007).





**Century Limestone Project**  
 Property Geology  
 Figure 5. Generalized Property Geology.  
*F. Bourke, May 2015*  
*NAD83 BC Albers, Scale 1:100,000*



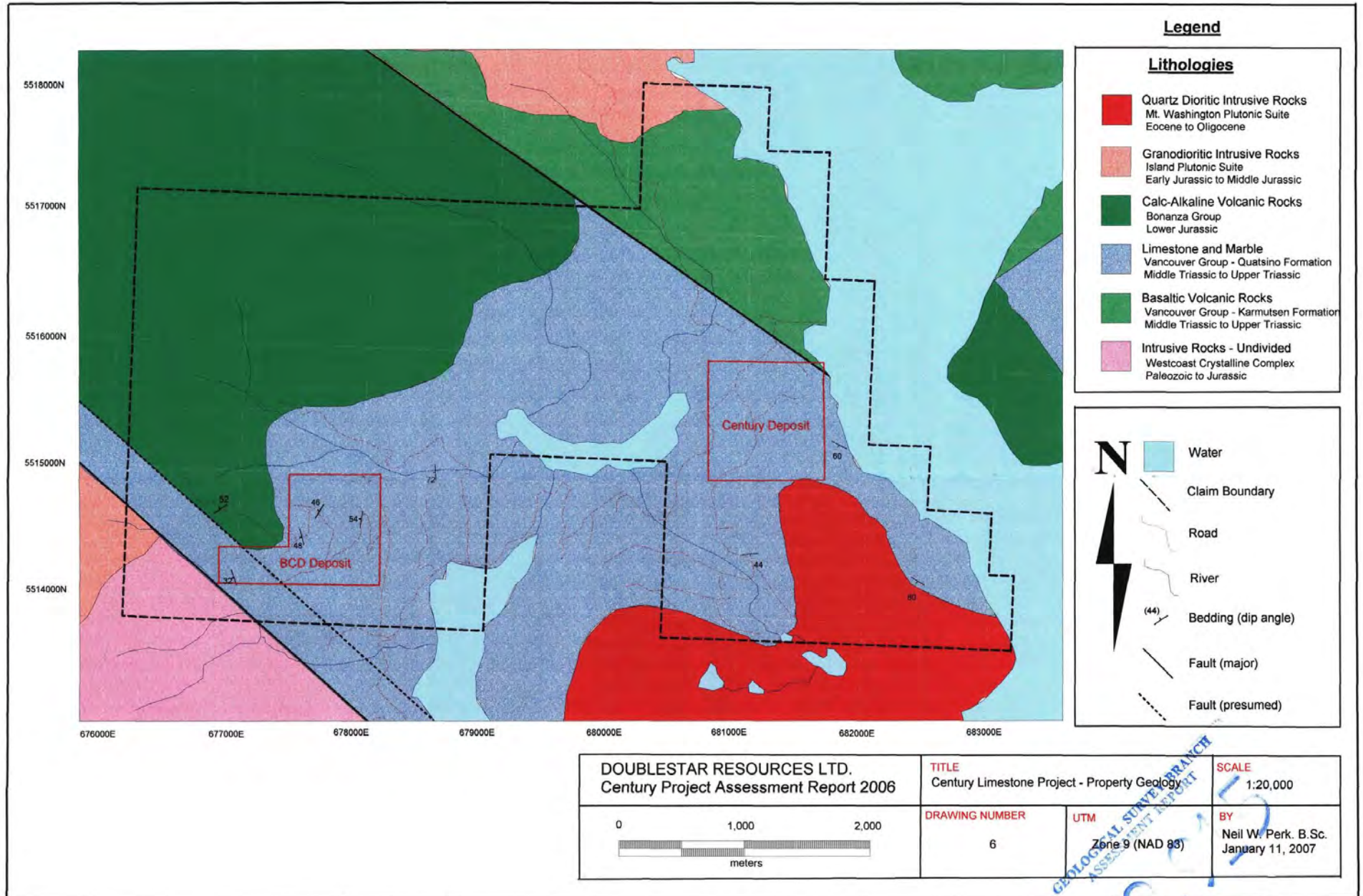


Figure 6. Property Geology from 2006 Assessment Report (Perk, 2007).

## 8.0 2014 Exploration

### **8.1 2014 Exploration Program**

Exploration work in 2014 was undertaken to better quantify the variability of the limestone chemistry, especially with respect to MgO content. Work was focussed on the area in the east part of the property referred to as the Century Zone in previous work. This area is the closest to an existing barge and log dump facility and has topography that would facilitate the development of an open pit.

In total, 15 samples were taken (Figures 7 and 8). Four were taken during an initial visit to the property on February 11, 2014. These samples were comprised of small chips taken from a number of places along a set length of road. As most of the day was spent on an overall examination of the property, only the direct analytical costs of the samples taken that day were applied to assessment. No personnel, field or travel costs from that day were applied.

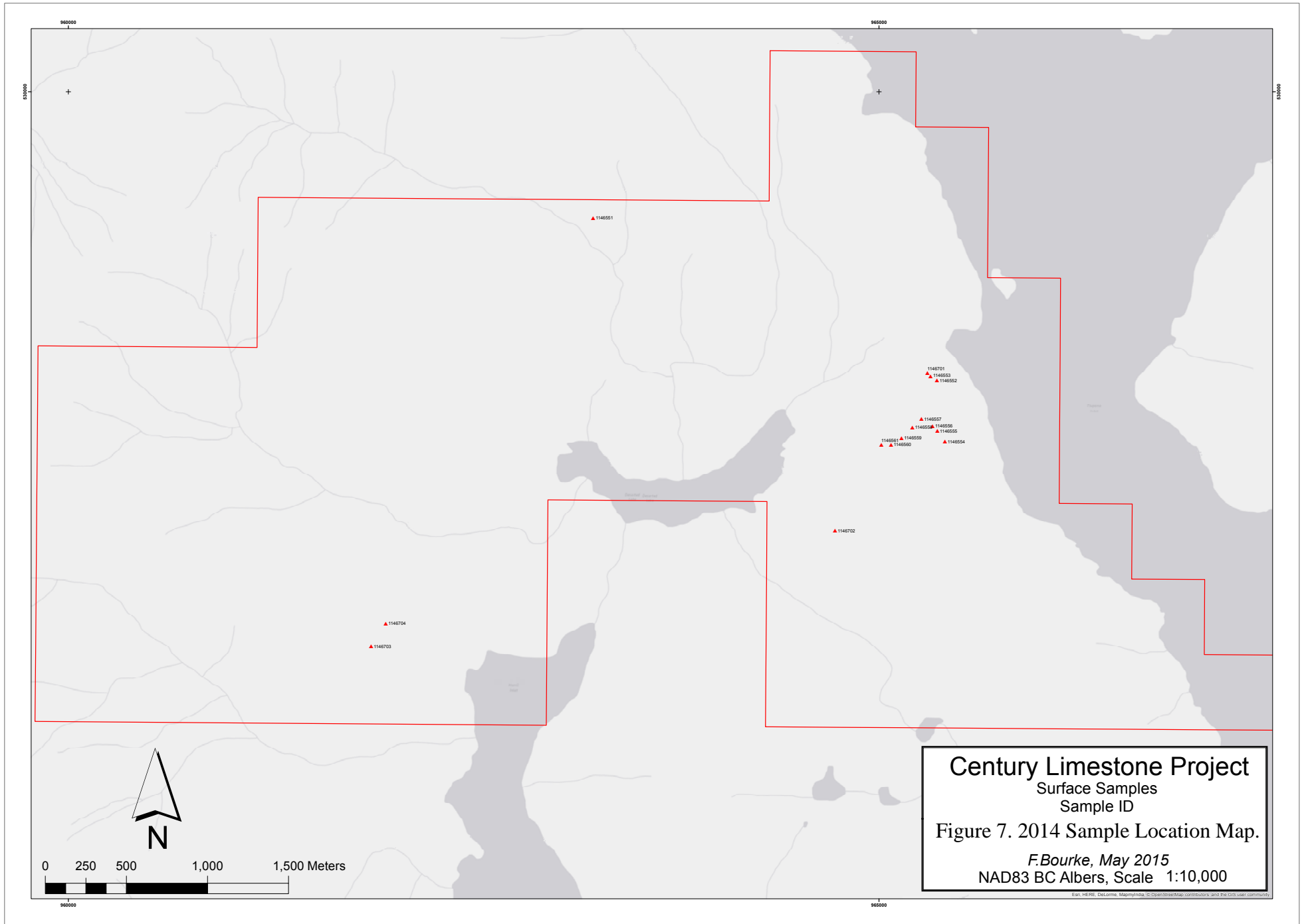
On August 21, 2014 a day was spent on the property specifically to undertake sampling and to make a better estimate of the density of dykes in the area above the existing barge landing in the east part of the property. Costs for that day and associated field and travel costs were filed for assessment credit.

One of the August 21 samples was taken in the north part of the property (1146551). The other 10 samples (1146652-1146561) were taken in the east part of the property. Samples were taken along road cuts and consisted of a number of chips taken from an approximately 2m by 2m area. Care was taken that all material sampled was in-situ and did not include any dyke rock. Most samples were taken along a road that trends east-west overall and thus crosscuts the principal direction of the dykes.

Samples were collected in plastic sample bags, labelled with unique sample tags and numbers, sealed, and then sent to Acme Analytical Labs for whole rock and multi-element analysis.

Work in 2014 did not result in any surface disturbance.

Work was undertaken by Hans Smit, P.Geo.. He was assisted by Scott Young.



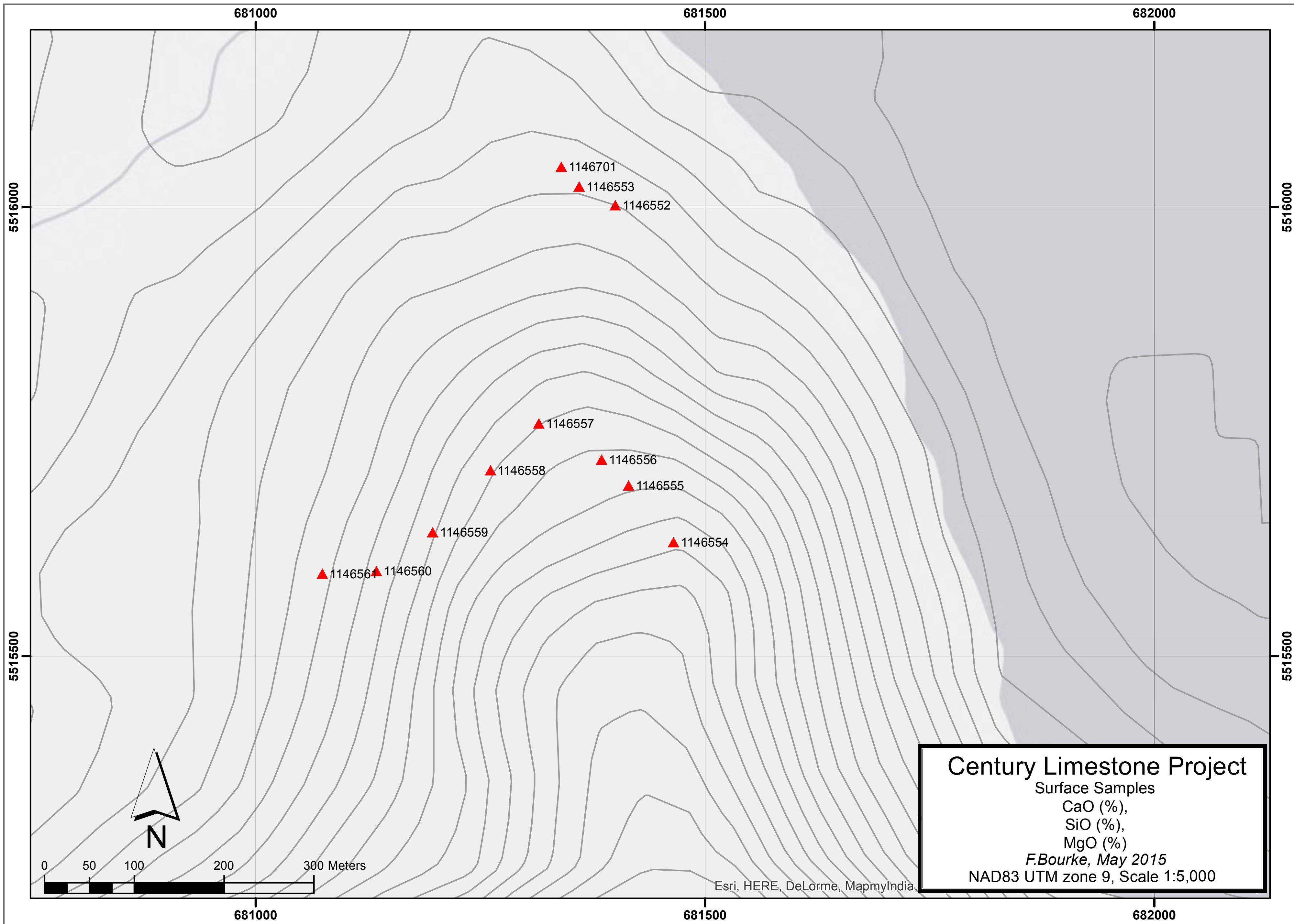


Figure 8. 2014 Samples: Detail Map.



## **8.2 2014 Exploration Results**

Sample description may be found in Table 2. The sample analysis results for selected parameters are given in Table 3. Complete analysis certificates are given in Appendix I.

For all 2014 samples, SiO<sub>2</sub> contents ranged from 0.15 to 2.01%. For the 10 samples taken in August in the east part of the property, the average was 0.6%. MgO results ranged from a low of 0.41% to a high of 19.88%. The average for the samples in the east part was 7.33%. CaO ranged from 32.08 to 55.14%, with an average of 47.56% for the samples in the east part. See Figures 9 and 10 for geochemistry maps. Figure 11 shows these locations and values on a Google Earth map.

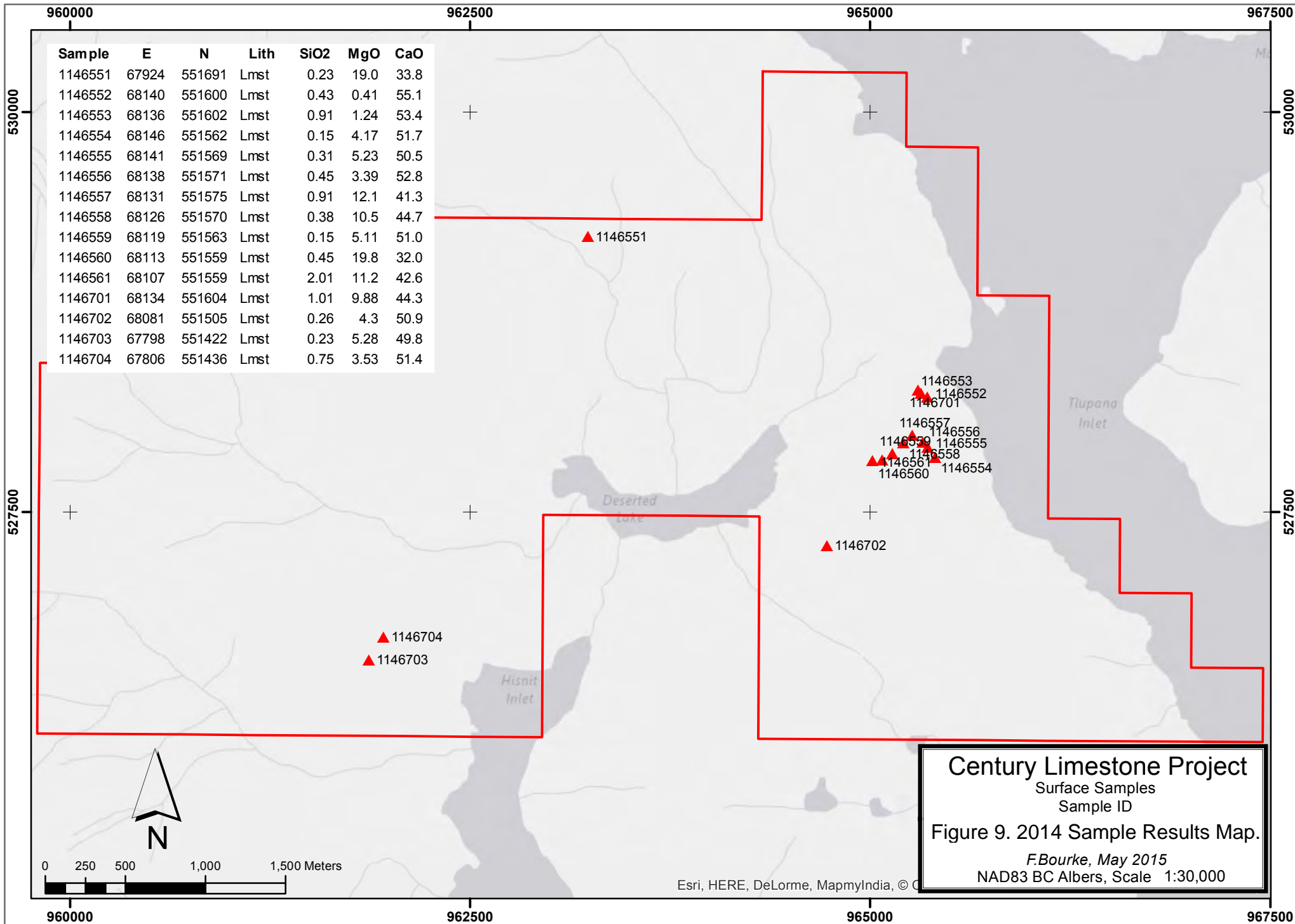
Results for other whole rock parameters were low, as were trace elements and metals.

On the road that transects stratigraphy, a 1 to 3 m, locally to 5 m, wide dyke was observed approximately every 25 to 30 m. Dykes generally trend NW and have steep to vertical dips (Figure 12).

Table 2. 2014 Sample Information

**Century Limestone Project**  
**2014 Sampling**

Sample #	Date	UTM East	UTM North	Sample Type	Rock Type	Description	Comments
1146701	11-Feb-14	681340	5516045	chips along road	Lmst	grey to white; minor carb veining	Chips from this point to S +/- 200m
1146702	11-Feb-14	680810	5515050	chips along road	Lmst	white to grey	Chips from this point to S/SW +/- 200m
1146703	11-Feb-14	677980	5514220	chips along road	Lmst	dark grey; some pinkish pieces	Chips from this point for 200 m NW
1146704	11-Feb-14	678065	5514365	chips along road	Lmst	dark grey to black; fine grain; hard	Chips from this point for 300 m NW
1146551	21-Aug-14	679241	5516918	grab	Lmst	white; massive; fine to med grain	
1146552	21-Aug-14	681400	5516002	grab	Lmst	grey; massive	west side of road
1146553	21-Aug-14	681360	5516023	grab	Lmst	grey; massive	west side of road
1146554	21-Aug-14	681465	5515627	grab	Lmst	grey; massive	west side of road
1146555	21-Aug-14	681415	5515690	grab	Lmst	grey; massive	by small dyke
1146556	21-Aug-14	681385	5515719	grab	Lmst	grey; massive	1 m dyke just above
1146557	21-Aug-14	681315	5515759	grab	Lmst	grey; massive	large otc by bend in road
1146558	21-Aug-14	681261	5515707	grab	Lmst	grey; massive; xtls on surface	dykes in area
1146559	21-Aug-14	681197	5515638	grab	Lmst	grey; massive; partly re-xtlized	dykes in area
1146560	21-Aug-14	681134	5515595	grab	Lmst	grey to white; massive; re-xtlized	dykes in area
1146561	21-Aug-14	681074	5515592	grab	Lmst	grey; massive	dykes in area



**Table 3. 2014 Sample Geochemical Results**

**Century Limestone Project**

**2014 Sample Results**

	WGHT	LF200	LF200	LF200	LF200	LF200	LF200	TC000	AQ200	AQ200	AQ200	AQ200
	Wgt	SiO2	Fe2O3	MgO	CaO	MnO	LOI	TOT/S	Cu	Pb	Zn	As
Sample #	KG	%	%	%	%	%	%	%	PPM	PPM	PPM	PPM
1146701	4.39	1.01	0.14	9.88	44.26	0.02	44.4	<0.02	1.4	0.2	<1	0.6
1146702	2.85	0.26	0.06	4.3	50.89	<0.01	44.3	<0.02	0.4	0.2	<1	<0.5
1146703	3.79	0.23	0.08	5.28	49.78	0.02	44.4	<0.02	0.5	0.1	<1	0.9
1146704	3.91	0.75	0.05	3.53	51.44	0.01	44	<0.02	0.2	0.1	<1	<0.5
1146551	3.84	0.23	0.09	19.08	33.88	0.01	46.3	<0.02	0.6	<0.1	<1	<0.5
1146552	1.01	0.43	0.32	0.41	55.14	0.06	43.5	0.03	0.9	0.2	<1	<0.5
1146553	1.65	0.91	0.11	1.24	53.49	<0.01	43.7	0.05	0.7	0.2	<1	1.7
1146554	1.62	0.15	0.05	4.17	51.78	<0.01	43.7	<0.02	1.1	0.1	<1	<0.5
1146555	1.76	0.31	0.06	5.23	50.53	<0.01	43.7	<0.02	0.3	0.2	<1	<0.5
1146556	1.20	0.45	0.07	3.39	52.88	<0.01	43.0	<0.02	0.8	0.2	<1	<0.5
1146557	1.32	0.91	0.21	12.17	41.32	0.01	44.9	<0.02	1.0	<0.1	<1	<0.5
1146558	1.82	0.38	0.10	10.51	44.70	<0.01	44.0	<0.02	0.8	<0.1	<1	<0.5
1146559	1.19	0.15	0.05	5.11	51.04	<0.01	43.5	<0.02	1.2	0.2	2	<0.5
1146560	1.43	0.45	0.61	19.88	32.08	0.07	46.5	<0.02	1.3	<0.1	<1	<0.5
1146561	1.70	2.01	0.33	11.20	42.64	0.04	43.5	<0.02	0.8	0.1	<1	<0.5

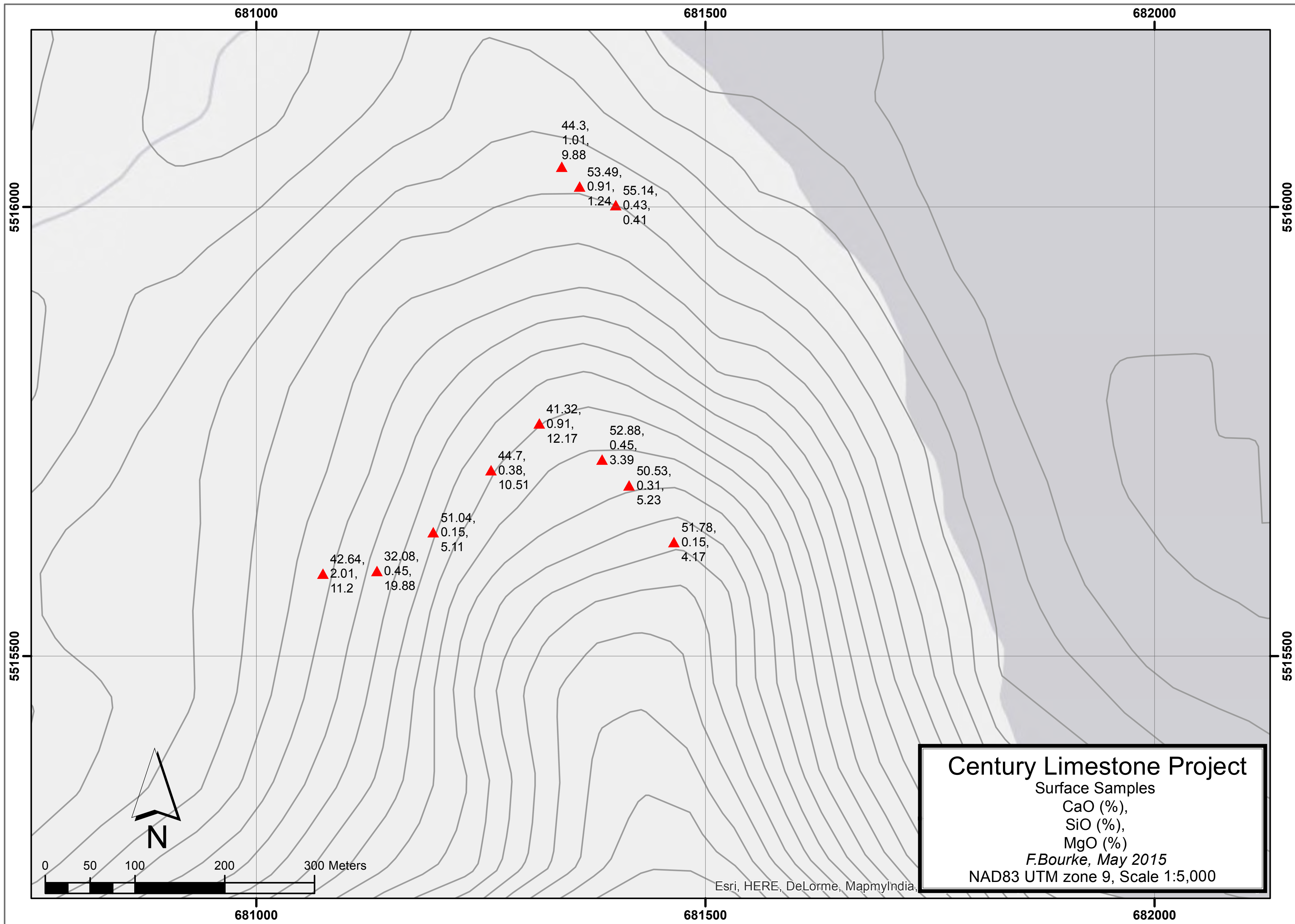
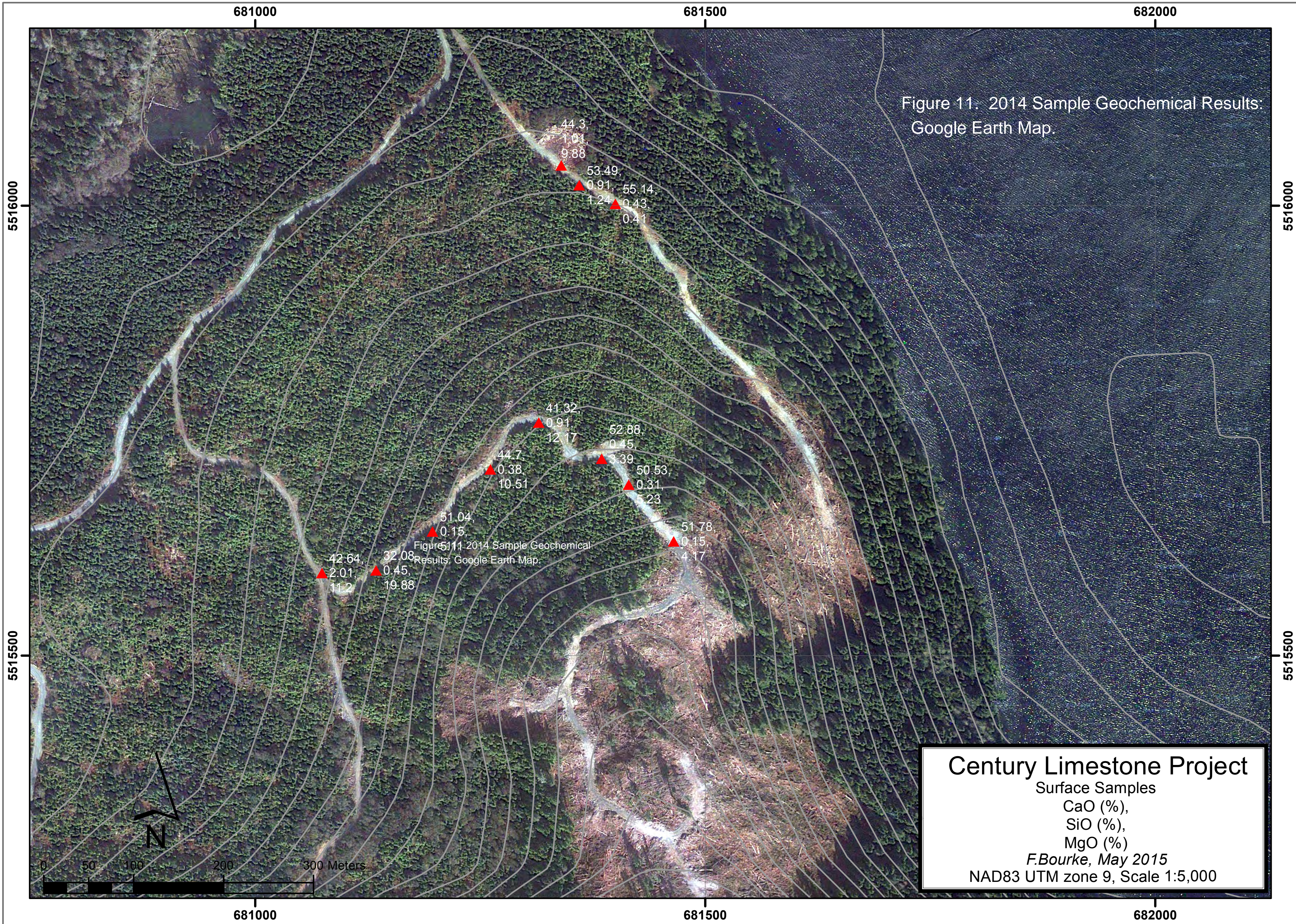


Figure 10. 2014 Sample Results: Detail Map.







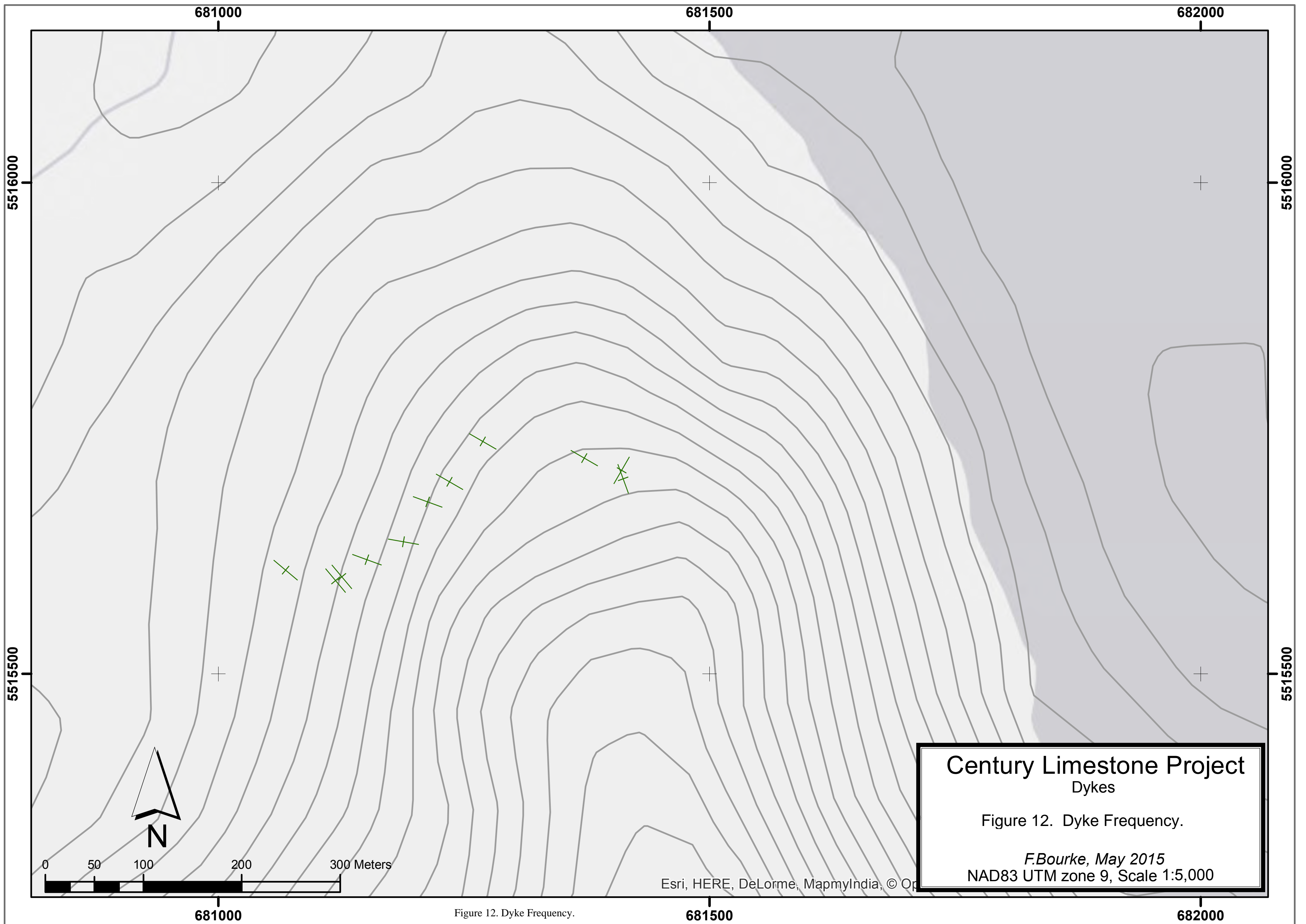


Figure 12. Dyke Frequency.

### **8.3 Sample Preparation, Analyses and Security**

All 2014 samples were delivered to Acme Analytical Lab in Vancouver, BC by Scott Young for analyses.

At Acme, the samples were crushed to 80% passing 10 mesh, followed by a 250 g split pulverized to 85% passing 200 mesh. A sub-sample of the pulverized material was submitted for an Acme LF200 analysis. (Standard suite Major Oxides ICP-ES - 21 parameters includes Leco C & S). A separate 0.5 gram sub-sample underwent digestion consisting of 1:1:1 Aqua Regia followed by multi-element element ICP-MS analysis (AQ200).

As the sampling was undertaken to get ranges of composition, no standards were inserted into the sample stream. Quality control samples inserted by Acme did not indicate any problems with the analysis.

Lab methodologies may be reviewed in Appendix II. The LF200 analysis referenced above is equivalent to the methodology described in Appendix II for Acme procedure 4A4B, the old analysis number.

### **8.4 Deposit Types**

The Century Limestone property is being explored as a possible source of limestone. Limestone is used for a variety of purposes including cement, industrial lime for agricultural and industrial applications and aggregate. High purity limestone that can be used for chemical purposes can have a higher monetary value than limestone containing higher concentrations of silicates, metals or other impurities. High MgO contents can be problematic if considering cement and chemical lime applications.

The large limestone quarries on Texada Island (to the east of Vancouver Island, in the Strait of Georgia) are examples of the deposit type being explored for at Century. The Texada quarries are developed in Quatsino Limestone.



## 9.0 Conclusions

There is a large volume of limestone on the Century claims proximal to deep tidewater. It should be relatively straightforward to establish a barge loading facility in the east part of the property and it may be possible to develop a facility for larger vessels.

The area in the east part of the property appears to be most favourable for the development of a limestone quarry. Results from samples taken in this area in 2014 indicate that the content of  $\text{SiO}_2$  and other major oxides, excepting  $\text{MgO}$ , is favourable. The content of potentially deleterious metals is low. The content of  $\text{MgO}$  is variable, ranging from are 0.4 to 19.9% in the 10 samples taken in the area. The average  $\text{MgO}$  content of 7.6% in the samples indicates that the limestone in this area is not suitable for cement or many chemical lime applications. The frequency of dykes in the area would make mining of a pure limestone product difficult.

The samples taken elsewhere on the property in 2014 also show generally low  $\text{SiO}_2$  and potentially deleterious elements, but variable  $\text{MgO}$ . Based on these results and results from the previous operator,  $\text{MgO}$  content is a concern throughout the property. Results presented in the report on 2006 work by Doublestar, (Perk 2007), indicate that limestone in the upper elevations on the west side of the property contain lower contents of  $\text{MgO}$  on average. Additional work may be able to define an area with lower  $\text{MgO}$  and less dykes over a significant area closer to tidewater.

The limestone may still have a number of other potential uses, including for aggregate and for armour stone.

## 10.0 Recommendations

Additional sampling in other areas west of, or to the south and uphill of, the 2014 sampling may find suitable zones with low MgO reasonably proximal to tidewater. These areas were not examined in 2014 so an estimate for the amount of sampling required is not given herein. If the contact of the Washington Suite quartz diorite extends as far north as the Doublestar mapping shows, the limestone potential to the south of the 2104 sampling is limited compared to the potential if the contact is as shown on BC government maps.

Access to tidewater is a very positive attribute to the property and makes aggregate and/or armour stone potential products from the limestone. There are a series of tests commonly done to see if material could be suitable for aggregate. Before money is spent on testing, a preliminary marketing study should be undertaken to see if there are any potential markets for aggregate that could be accessed competitively from Century Limestone.

## 11.0 References

DeBari, S.M., Anderson, R.G., and Mortensen, J.K.. (1999): Correlation among lower to upper crustal components in an island arc: the Jurassic Bonanza arc, Vancouver Island, Canada. *Canadian Journal of Earth Sciences*. Vol 36, pp 1371-1413.

Gray, Paul (2006): Geological and Geophysical Technical Assessment Report on the Century Limestone Project, Alberni Mining Division, Assessment Report 28386, 84p.

Hammack, J.L., Nixon, G.T., Koyanagi, V.M., Payie, G.J., Panteleyev, A., Massey, N.W.D., Hamilton, J.V., and Haggart, J.W. (1994): Preliminary Geology of the Quatsino – Port McNeil Area, Northern Vancouver Island (NTS 92L/12, 11W). BC Ministry of Energy, Mines and Petroleum Resources Open File 1994-26.

MINFILE 092E081. Century Limestone. Ministry of Energy, Mines and Petroleum Resources.

MINFILE 092E020. Hisnet Inlet. Ministry of Energy, Mines and Petroleum Resources.

Muller, J.E. (1977): Field Trip 7: Guidebook. Joint Annual Meeting, 1977, of the Geological Association of Canada and the Mineralogical Association of Canada. Geological Survey of Canada, Vancouver, BC.

Nixon, G.T., Hammack, J.L., Koyanagi, V.M., Payie, G.J., Panteleyev, A., Massey, N.W.D., Hamilton, J.V., and Haggart, J.W. (1994): Preliminary geology of the Quatsino – Port McNeil map areas, northern Vancouver Island (92L/12, 11). BC Ministry of Energy, Mines and Petroleum Resources. Paper no. 1994-1; pp 63-85.

Perk, Neil (2007): Geological and Geophysical Technical Assessment Report on the Century Limestone Project, Alberni Mining Division, Assessment Report 28915, 79p.

[www.empr.gov.bc.ca/Mining/Geoscience/MapPlace](http://www.empr.gov.bc.ca/Mining/Geoscience/MapPlace)

## 12.0 Statement of Qualifications

### **HANS SMIT, P.GEO.**

10084 Hislop Road  
Telkwa, BC, Canada  
V0J 2X1

Phone (250) 846-5765  
E-mail [hsmit@bulkley.net](mailto:hsmit@bulkley.net)

1. I, Hans Q. Smit, P.Geo., Consulting Geologist, do hereby certify that:
2. I am a Professional Geologist with a residence and business address at 10084 Hislop Road, Telkwa, British Columbia, V0J 2X1.
3. I am a graduate of the University of British Columbia (1984) with a Bachelor of Science (Honours) in Geology.
4. I am a Registered Professional Geoscientist in good standing with the Association of Professional Engineers and Geoscientists of the Province of British Columbia (License # 19281).
5. I have worked in the mineral exploration and development industry since 1981 and have worked as a geologist for a total of 31 years since my graduation from university.
6. I am responsible for the preparation of all the sections of this report titled, "Geochemical Sampling Report on the Century Limestone Property, British Columbia, Canada", dated July 23, 2015.
7. At the time the work described in this report was undertaken, I was a director of Sonoma Resources Inc..



Hans Smit, P.Geo.

DATED at Telkwa, British Columbia this 23rd Day of July 2015.

## 13.0 Statement of Expenses

Total expenditures on the Century Limestone project that can be applied for assessment credit during 2014 were \$5,352.00.

<b>Site</b>	<b>Number</b>	<b>Unit</b>	<b>Cost/unit</b>		<b>Cost</b>
Geologist (Hans Smit, P.Geo) *	1	day	1000.00		1000.00
Helper (Scott Young) *	1	day	225.00		225.00
Truck	1	day	150.00		150.00
Analysis	15	samples	71.45		
Sample prep	15	samples	8.10	121.44	
LF202 - WR and trace elements	15	samples	58.80	882.00	
Handling fees	15	samples	7.12	106.80	1110.24
Room and Board	2	man-days	100.00		200.00
<b>Travel</b>					
Geologist	1	day	1000.00		1000.00
Helper	1	day	225.00		225.00
Highway Kms Vanc. to Gold River rtn	528	km	0.50		264.00
Ferry (truck + 2 passengers) rtn	2	trips	89.00		178.00
<b>Other</b>					
Planning, Data analysis and Report	1	day	1000.00		1000.00
					<b>\$5,352</b>

\* Dates worked:

Geologist: February 11 and August 21, 2014

Helper: February 11 and August 21, 2014

## Appendix I: Assay Certificates



Client: **Sonoma Resources Inc.**

www.acmelab.com

Acme Analytical Laboratories (Vancouver) Ltd.  
 9050 Shaughnessy St Vancouver BC V6P 6E5 CANADA  
 PHONE (604) 253-3158

Submitted By: Scott Young  
 Receiving Lab: Canada-Vancouver  
 Received: March 07, 2014  
 Report Date: April 14, 2014  
 Page: 1 of 2

# CERTIFICATE OF ANALYSIS

VAN14000844.1

## CLIENT JOB INFORMATION

Project: None Given  
 Shipment ID:  
 P.O. Number  
 Number of Samples: 4

## SAMPLE DISPOSAL

RTRN-PLP Return  
 RTRN-RJT Return

Acme does not accept responsibility for samples left at the laboratory after 90 days without prior written instructions for sample storage or return.

Invoice To: Smit, Hans  
 10084 Hislop Road  
 Telkwa BC V0J 2X1  
 CANADA

CC:

## SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

Procedure Code	Number of Samples	Code Description	Test Wgt (g)	Report Status	Lab
PRP70-250	4	Crush, split and pulverize 250 g rock to 200 mesh			VAN
LF202	4	Total Whole Rock Characterization with AQ200	0.2	Completed	VAN
DRPLP	4	Warehouse handling / disposition of pulps			VAN
DRRJT	4	Warehouse handling / Disposition of reject			VAN

## ADDITIONAL COMMENTS



This report supersedes all previous preliminary and final reports with this file number dated prior to the date on this certificate. Signature indicates final approval; preliminary reports are unsigned and should be used for reference only. All results are considered the confidential property of the client. Acme assumes the liabilities for actual cost of analysis only. Results apply to samples as submitted. \*\*\* asterisk indicates that an analytical result could not be provided due to unusually high levels of interference from other elements.



Client: **Sonoma Resources Inc.**

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Project: None Given  
Report Date: April 14, 2014

Acme Analytical Laboratories (Vancouver) Ltd.  
9050 Shaughnessy St Vancouver BC V6P 6E5 CANADA  
PHONE (604) 253-3158

Page: 2 of 2

Part: 1 of 4

# CERTIFICATE OF ANALYSIS

VAN14000844.1

Method	WGHT	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200
Analyte	Wgt	SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	P2O5	MnO	Cr2O3	Ni	Sc	LOI	Sum	Ba	Be	Co	Cs	
Unit	kg	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	%	%	ppm	ppm	ppm	ppm	
MDL	0.01	0.01	0.01	0.04	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.002	20	1	-5.1	0.01	1	1	0.2	0.1	
1146701	Rock	4.39	1.01	0.10	0.14	9.88	44.26	<0.01	<0.01	0.01	<0.01	0.02	<0.002	<20	<1	44.4	99.79	2	<1	0.2	<0.1
1146702	Rock	2.85	0.26	0.03	0.06	4.30	50.89	<0.01	<0.01	<0.01	0.01	<0.01	0.003	<20	<1	44.3	99.88	<1	<1	<0.2	<0.1
1146703	Rock	3.79	0.23	0.03	0.08	5.28	49.78	<0.01	<0.01	<0.01	<0.01	0.02	<0.002	<20	<1	44.4	99.87	2	<1	<0.2	<0.1
1146704	Rock	3.91	0.75	0.03	0.05	3.53	51.44	0.01	0.01	<0.01	0.01	0.01	<0.002	<20	<1	44.0	99.90	4	<1	<0.2	<0.1





Client: **Sonoma Resources Inc.**

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Project: None Given  
Report Date: April 14, 2014

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Page: 2 of 2

Part: 2 of 4

# CERTIFICATE OF ANALYSIS

VAN14000844.1

	Method	LF200																				
		Analyte	Ga	Hf	Nb	Rb	Sn	Sr	Ta	Th	U	V	W	Zr	Y	La	Ce	Pr	Nd	Sm	Eu	Gd
		Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
		MDL	0.5	0.1	0.1	0.1	1	0.5	0.1	0.2	0.1	8	0.5	0.1	0.1	0.1	0.1	0.02	0.3	0.05	0.02	0.05
1146701	Rock	<0.5	<0.1	0.4	<0.1	<1	385.4	<0.1	<0.2	2.7	15	<0.5	1.3	0.4	0.4	0.4	0.04	<0.3	<0.05	<0.02	0.05	
1146702	Rock	<0.5	<0.1	<0.1	<0.1	<1	397.2	<0.1	<0.2	1.8	16	<0.5	1.0	1.1	0.4	0.7	0.09	0.4	0.12	0.04	0.13	
1146703	Rock	<0.5	<0.1	<0.1	<0.1	<1	307.9	<0.1	<0.2	1.7	9	<0.5	0.6	1.6	0.7	0.6	0.10	0.5	0.06	0.03	0.09	
1146704	Rock	<0.5	<0.1	0.7	1.6	<1	305.2	<0.1	<0.2	2.2	11	<0.5	2.0	2.2	1.5	1.1	0.16	0.4	<0.05	0.06	0.13	



Client: **Sonoma Resources Inc.**

www.acmelab.com

Acme Analytical Laboratories (Vancouver) Ltd.  
 9050 Shaughnessy St Vancouver BC V6P 6E5 CANADA  
 PHONE (604) 253-3158

Project: None Given  
 Report Date: April 14, 2014

Page: 2 of 2

Part: 3 of 4

**CERTIFICATE OF ANALYSIS**

**VAN14000844.1**

	Method Analyte Unit MDL	LF200	LF200	LF200	LF200	LF200	LF200	LF200	TC000	TC000	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200		
		Tb	Dy	Ho	Er	Tm	Yb	Lu	TOT/C	TOT/S	Mo	Cu	Pb	Zn	Ni	As	Cd	Sb	Bi	Ag	Au	
		ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb
		0.01	0.05	0.02	0.03	0.01	0.05	0.01	0.02	0.02	0.1	0.1	0.1	1	0.1	0.5	0.1	0.1	0.1	0.1	0.1	0.1
1146701	Rock	<0.01	<0.05	<0.02	<0.03	<0.01	<0.05	<0.01	12.64	<0.02	0.2	1.4	0.2	<1	<0.1	0.6	<0.1	<0.1	<0.1	<0.1	2.3	
1146702	Rock	0.02	0.17	0.02	0.10	0.01	0.08	0.01	12.94	<0.02	<0.1	0.4	0.2	<1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	1.0	
1146703	Rock	0.01	0.12	0.03	0.10	0.01	0.08	<0.01	12.57	<0.02	0.4	0.5	0.1	<1	<0.1	0.9	<0.1	<0.1	<0.1	<0.1	1.2	
1146704	Rock	0.02	0.17	0.02	0.09	0.02	0.06	0.02	12.77	<0.02	0.5	0.2	0.1	<1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	1.0	



**Client: Sonoma Resources Inc.**

[www.acmelab.com](http://www.acmelab.com)

Acme Analytical Laboratories (Vancouver) Ltd.  
 9050 Shaughnessy St Vancouver BC V6P 6E5 CANADA  
 PHONE (604) 253-3158

Project: None Given  
 Report Date: April 14, 2014

Page: 2 of 2

Part: 4 of 4

## CERTIFICATE OF ANALYSIS

VAN14000844.1

	Method	AQ200	AQ200	AQ200
		Hg	TI	Se
Analyte		ppm	ppm	ppm
Unit				
MDL		0.01	0.1	0.5
1146701	Rock	<0.01	<0.1	<0.5
1146702	Rock	<0.01	<0.1	<0.5
1146703	Rock	<0.01	<0.1	<0.5
1146704	Rock	<0.01	<0.1	<0.5



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# QUALITY CONTROL REPORT

VAN14000844.1

Method	WGHT	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200
Analyte	Wgt	SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	P2O5	MnO	Cr2O3	Ni	Sc	LOI	Sum	Ba	Be	Co	Cs	
Unit	kg	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	%	%	ppm	ppm	ppm	ppm	
MDL	0.01	0.01	0.01	0.04	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.002	20	1	-5.1	0.01	1	1	0.2	0.1	
Pulp Duplicates																					
1146704	Rock	3.91	0.75	0.03	0.05	3.53	51.44	0.01	0.01	<0.01	0.01	0.01	<0.002	<20	<1	44.0	99.90	4	<1	<0.2	<0.1
REP 1146704	QC		0.34	0.02	0.06	3.55	51.85	<0.01	<0.01	<0.01	0.01	0.01	<0.002	<20	<1	44.0	99.89	5	<1	0.2	<0.1
Reference Materials																					
STD DS10	Standard																				
STD GS311-1	Standard																				
STD GS910-4	Standard																				
STD OREAS45EA	Standard																				
STD SO-18	Standard		58.31	14.05	7.52	3.39	6.28	3.70	2.14	0.69	0.79	0.40	0.550	44	24	1.9	99.74	529	2	28.2	7.3
STD SO-18	Standard		58.09	14.05	7.69	3.38	6.34	3.69	2.15	0.69	0.81	0.40	0.548	55	25	1.9	99.74	514	1	26.5	6.8
STD SO-18	Standard		57.97	14.14	7.60	3.38	6.37	3.61	2.36	0.69	0.78	0.39	0.542	42	24	1.9	99.75	492	<1	26.8	6.7
STD SO-18	Standard		58.02	14.09	7.67	3.37	6.34	3.62	2.31	0.69	0.79	0.39	0.546	48	24	1.9	99.74	518	3	24.5	7.3
STD GS311-1 Expected																					
STD GS910-4 Expected																					
STD DS10 Expected																					
STD OREAS45EA Expected																					
STD SO-18 Expected			58.47	14.23	7.67	3.35	6.42	3.71	2.17	0.69	0.83	0.39	0.55	44	25			514		26.2	7.1
BLK	Blank																				
BLK	Blank																				
BLK	Blank		0.02	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.002	<20	<1	0.0	0.05	1	<1	<0.2	<0.1
BLK	Blank		<0.01	<0.01	<0.04	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.002	<20	<1	0.0	<0.01	<1	<1	<0.2	<0.1
Prep Wash																					
G1	Prep Blank		66.90	16.29	3.44	1.01	3.63	3.75	3.34	0.39	0.16	0.10	0.003	<20	5	0.7	99.74	927	1	4.7	5.8



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# QUALITY CONTROL REPORT

VAN14000844.1

Method		LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200		
Analyte		Ga	Hf	Nb	Rb	Sn	Sr	Ta	Th	U	V	W	Zr	Y	La	Ce	Pr	Nd	Sm	Eu	Gd	
Unit		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
MDL		0.5	0.1	0.1	0.1	1	0.5	0.1	0.2	0.1	8	0.5	0.1	0.1	0.1	0.1	0.02	0.3	0.05	0.02	0.05	
Pulp Duplicates																						
1146704	Rock	<0.5	<0.1	0.7	1.6	<1	305.2	<0.1	<0.2	2.2	11	<0.5	2.0	2.2	1.5	1.1	0.16	0.4	<0.05	0.06	0.13	
REP 1146704	QC	<0.5	<0.1	0.2	0.2	<1	309.2	<0.1	<0.2	2.2	<8	<0.5	1.7	1.8	1.1	0.3	0.11	0.3	<0.05	0.04	0.16	
Reference Materials																						
STD DS10	Standard																					
STD GS311-1	Standard																					
STD GS910-4	Standard																					
STD OREAS45EA	Standard																					
STD SO-18	Standard	17.2	9.6	19.9	28.8	15	442.3	6.4	9.5	16.4	200	14.7	301.5	32.5	13.6	28.3	3.26	13.4	2.86	0.86	3.15	
STD SO-18	Standard	16.7	9.1	19.1	26.9	14	403.3	6.5	9.4	16.3	205	14.1	281.7	30.3	13.3	27.4	3.31	12.5	2.82	0.79	2.81	
STD SO-18	Standard	16.9	9.0	17.6	28.8	13	400.1	6.3	9.3	15.1	209	12.7	292.1	29.5	12.8	28.3	3.31	13.1	3.11	0.83	2.88	
STD SO-18	Standard	15.7	8.7	17.2	26.8	14	395.1	5.4	9.8	16.1	231	12.5	282.6	28.4	12.3	26.2	3.31	12.4	2.64	0.76	2.62	
STD GS311-1 Expected																						
STD GS910-4 Expected																						
STD DS10 Expected																						
STD OREAS45EA Expected																						
STD SO-18 Expected		17.6	9.8	19.3	28.7	15	407.4	7.4	9.9	16.4	200	14.8	290	29	12.3	27.1	3.45	14	3	0.89	2.93	
BLK	Blank																					
BLK	Blank																					
BLK	Blank	<0.5	<0.1	<0.1	<0.1	<1	<0.5	<0.1	<0.2	<0.1	<8	<0.5	<0.1	<0.1	<0.1	<0.1	<0.02	<0.3	<0.05	<0.02	<0.05	
BLK	Blank	<0.5	<0.1	<0.1	<0.1	<1	<0.5	<0.1	<0.2	<0.1	<8	<0.5	0.1	<0.1	<0.1	<0.1	<0.02	<0.3	<0.05	<0.02	<0.05	
Prep Wash																						
G1	Prep Blank	22.1	4.0	26.1	139.3	2	884.3	1.3	10.3	4.4	53	<0.5	158.6	18.6	31.7	59.7	6.84	25.1	4.15	1.20	4.00	



Acme Analytical Laboratories (Vancouver) Ltd.  
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# QUALITY CONTROL REPORT

VAN14000844.1

Method	LF200	LF200	LF200	LF200	LF200	LF200	LF200	TC000	TC000	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	
Analyte	Tb	Dy	Ho	Er	Tm	Yb	Lu	TOT/C	TOT/S	Mo	Cu	Pb	Zn	Ni	As	Cd	Sb	Bi	Ag	Au	
Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	
MDL	0.01	0.05	0.02	0.03	0.01	0.05	0.01	0.02	0.02	0.1	0.1	0.1	1	0.1	0.5	0.1	0.1	0.1	0.1	0.1	
Pulp Duplicates																					
1146704	Rock	0.02	0.17	0.02	0.09	0.02	0.06	0.02	12.77	<0.02	0.5	0.2	0.1	<1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	1.0
REP 1146704	QC	0.03	0.13	0.04	0.08	0.02	0.08	0.01													
Reference Materials																					
STD DS10	Standard									11.8	151.7	148.7	357	73.6	45.1	2.2	5.8	10.0	2.2	60.0	
STD GS311-1	Standard							1.03	2.44												
STD GS910-4	Standard							2.69	8.20												
STD OREAS45EA	Standard									1.3	665.1	11.9	28	373.8	8.3	<0.1	0.2	0.2	0.3	54.1	
STD SO-18	Standard	0.50	2.94	0.61	1.79	0.26	1.84	0.29													
STD SO-18	Standard	0.50	2.93	0.59	1.71	0.25	1.72	0.26													
STD SO-18	Standard	0.47	2.79	0.60	1.97	0.30	1.75	0.27													
STD SO-18	Standard	0.50	2.93	0.62	1.86	0.25	1.81	0.27													
STD GS311-1 Expected								1.02	2.35												
STD GS910-4 Expected								2.65	8.27												
STD DS10 Expected										14.69	154.61	150.55	370	74.6	43.7	2.49	8.23	11.65	2.02	91.9	
STD OREAS45EA Expected										1.39	709	14.3	28.9	381	9.1	0.02	0.2	0.26	0.26	53	
STD SO-18 Expected		0.53	3	0.62	1.84	0.27	1.79	0.27													
BLK	Blank							<0.02	<0.02												
BLK	Blank									<0.1	<0.1	<0.1	<1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5
BLK	Blank	<0.01	<0.05	<0.02	<0.03	<0.01	<0.05	<0.01													
BLK	Blank	<0.01	<0.05	<0.02	<0.03	<0.01	<0.05	<0.01													
Prep Wash																					
G1	Prep Blank	0.54	2.72	0.61	1.79	0.29	1.94	0.31	<0.02	<0.02	<0.1	2.8	2.5	45	2.1	<0.5	<0.1	<0.1	<0.1	<0.1	2.9



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Project: None Given  
 Report Date: April 14, 2014

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Part: 4 of 4

# QUALITY CONTROL REPORT

VAN14000844.1

Method	AQ200	AQ200	AQ200
Analyte	Hg	Tl	Se
Unit	ppm	ppm	ppm
MDL	0.01	0.1	0.5
Pulp Duplicates			
1146704	Rock	<0.01	<0.1 <0.5
REP 1146704	QC		
Reference Materials			
STD DS10	Standard	0.28	4.8 2.0
STD GS311-1	Standard		
STD GS910-4	Standard		
STD OREAS45EA	Standard	<0.01	0.1 <0.5
STD SO-18	Standard		
STD SO-18	Standard		
STD SO-18	Standard		
STD SO-18	Standard		
STD GS311-1 Expected			
STD GS910-4 Expected			
STD DS10 Expected		0.3	5.1 2.3
STD OREAS45EA Expected		0.072	0.6
STD SO-18 Expected			
BLK	Blank		
BLK	Blank	<0.01	<0.1 <0.5
BLK	Blank		
BLK	Blank		
Prep Wash			
G1	Prep Blank	<0.01	0.4 <0.5



**Client:** **Sonoma Resources Inc.**  
Suite 1100 - 1111 Melville St.  
Vancouver BC V6E 3V6 CANADA

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Bureau Veritas Commodities Canada Ltd.  
9050 Shaughnessy St Vancouver BC V6P 6E5 CANADA  
PHONE (604) 253-3158

Submitted By: Hans Smit  
Receiving Lab: Canada-Vancouver  
Received: August 26, 2014  
Report Date: September 26, 2014  
Page: 1 of 2

## CERTIFICATE OF ANALYSIS

VAN14002778.1

### CLIENT JOB INFORMATION

Project: Century Limestone  
Shipment ID: 2014-01  
P.O. Number  
Number of Samples: 11

### SAMPLE DISPOSAL

PICKUP-PLP Client to Pickup Pulps  
PICKUP-RJT Client to Pickup Rejects

### SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

Procedure Code	Number of Samples	Code Description	Test Wgt (g)	Report Status	Lab
BAT01	1	Batch charge of <20 samples			VAN
PRP70-250	11	Crush, split and pulverize 250 g rock to 200 mesh			VAN
LF202	11	Total Whole Rock Characterization with AQ200	0.2	Completed	VAN
DRPLP	11	Warehouse handling / disposition of pulps			VAN
DRRJT	11	Warehouse handling / Disposition of reject			VAN

### ADDITIONAL COMMENTS

Acme does not accept responsibility for samples left at the laboratory after 90 days without prior written instructions for sample storage or return.

Invoice To: Smit, Hans  
10084 Hislop Road  
Telkwa BC V0J 2X1  
CANADA

CC: Scott Young  
Jim Place



This report supersedes all previous preliminary and final reports with this file number dated prior to the date on this certificate. Signature indicates final approval; preliminary reports are unsigned and should be used for reference only. All results are considered the confidential property of the client. Acme assumes the liabilities for actual cost of analysis only. Results apply to samples as submitted. \*\*\* asterisk indicates that an analytical result could not be provided due to unusually high levels of interference from other elements.





**Client:** Sonoma Resources Inc.  
 Suite 1100 - 1111 Melville St.  
 Vancouver BC V6E 3V6 CANADA

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**Project:** Century Limestone  
**Report Date:** September 26, 2014

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Part: 1 of 4

# CERTIFICATE OF ANALYSIS

VAN14002778.1

	Method Analyte Unit MDL	WGHT	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200
		Wgt	SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	P2O5	MnO	Cr2O3	Ni	Sc	LOI	Sum	Ba	Be	Co	Cs
		kg	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	%	%	ppm	ppm	ppm	ppm
		0.01	0.01	0.01	0.04	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.002	20	1	-5.1	0.01	1	1	0.2
1146551	Rock	3.84	0.23	0.05	0.09	19.08	33.88	0.01	<0.01	<0.01	<0.01	0.01	<0.002	<20	<1	46.3	99.63	<1	<1	<0.2	<0.1
1146552	Rock	1.01	0.43	0.04	0.32	0.41	55.14	<0.01	<0.01	<0.01	<0.01	0.06	<0.002	<20	<1	43.5	99.89	3	<1	<0.2	<0.1
1146553	Rock	1.65	0.91	0.31	0.11	1.24	53.49	<0.01	0.10	<0.01	<0.01	<0.01	<0.002	<20	2	43.7	99.92	3	<1	<0.2	<0.1
1146554	Rock	1.62	0.15	0.01	0.05	4.17	51.78	<0.01	<0.01	<0.01	<0.01	<0.01	<0.002	<20	<1	43.7	99.88	<1	1	<0.2	<0.1
1146555	Rock	1.76	0.31	0.02	0.06	5.23	50.53	<0.01	0.01	<0.01	<0.01	<0.01	<0.002	<20	<1	43.7	99.86	3	<1	<0.2	<0.1
1146556	Rock	1.20	0.45	0.04	0.07	3.39	52.88	<0.01	<0.01	<0.01	0.01	<0.01	<0.002	<20	<1	43.0	99.89	1	<1	<0.2	<0.1
1146557	Rock	1.32	0.91	0.25	0.21	12.17	41.32	<0.01	0.02	<0.01	0.01	0.01	<0.002	<20	<1	44.9	99.75	2	<1	0.3	<0.1
1146558	Rock	1.82	0.38	0.04	0.10	10.51	44.70	<0.01	<0.01	<0.01	<0.01	<0.01	<0.002	<20	<1	44.0	99.79	2	<1	<0.2	<0.1
1146559	Rock	1.19	0.15	0.03	0.05	5.11	51.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.002	<20	<1	43.5	99.88	<1	<1	<0.2	<0.1
1146560	Rock	1.43	0.45	0.06	0.61	19.88	32.08	<0.01	<0.01	<0.01	<0.01	0.07	<0.002	<20	<1	46.5	99.64	<1	<1	<0.2	<0.1
1146561	Rock	1.70	2.01	0.03	0.33	11.20	42.64	<0.01	<0.01	<0.01	<0.01	0.04	<0.002	<20	<1	43.5	99.77	<1	2	<0.2	<0.1



**Client:** **Sonoma Resources Inc.**  
 Suite 1100 - 1111 Melville St.  
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**Project:** Century Limestone  
**Report Date:** September 26, 2014

Bureau Veritas Commodities Canada Ltd.

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Part: 2 of 4

# CERTIFICATE OF ANALYSIS

VAN14002778.1

	Method	LF200																				
		Analyte	Ga	Hf	Nb	Rb	Sn	Sr	Ta	Th	U	V	W	Zr	Y	La	Ce	Pr	Nd	Sm	Eu	Gd
		Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
		MDL	0.5	0.1	0.1	0.1	1	0.5	0.1	0.2	0.1	8	0.5	0.1	0.1	0.1	0.1	0.02	0.3	0.05	0.02	0.05
1146551	Rock	<0.5	<0.1	<0.1	<0.1	<1	505.8	<0.1	<0.2	2.9	<8	<0.5	0.9	0.1	0.4	<0.1	<0.02	<0.3	<0.05	<0.02	<0.05	
1146552	Rock	<0.5	<0.1	<0.1	<0.1	<1	769.6	<0.1	<0.2	1.7	<8	<0.5	1.1	0.1	0.5	0.3	<0.02	<0.3	<0.05	0.04	0.06	
1146553	Rock	<0.5	<0.1	<0.1	1.6	<1	371.2	<0.1	<0.2	2.8	<8	<0.5	2.0	1.4	0.8	0.9	0.13	0.7	0.23	0.04	0.24	
1146554	Rock	<0.5	<0.1	<0.1	<0.1	<1	366.6	<0.1	<0.2	2.2	<8	<0.5	0.4	<0.1	0.2	0.2	<0.02	<0.3	<0.05	0.02	<0.05	
1146555	Rock	<0.5	<0.1	<0.1	<0.1	<1	348.5	<0.1	<0.2	2.8	<8	<0.5	0.9	<0.1	0.8	0.1	<0.02	<0.3	<0.05	<0.02	<0.05	
1146556	Rock	<0.5	<0.1	<0.1	<0.1	<1	364.8	<0.1	<0.2	1.6	<8	<0.5	0.9	0.4	0.4	<0.1	<0.02	<0.3	<0.05	<0.02	<0.05	
1146557	Rock	<0.5	<0.1	<0.1	<0.1	<1	327.0	<0.1	<0.2	2.8	<8	<0.5	1.3	0.3	0.5	0.3	<0.02	<0.3	<0.05	0.04	0.07	
1146558	Rock	<0.5	<0.1	<0.1	<0.1	<1	263.0	<0.1	<0.2	1.9	<8	<0.5	0.4	0.2	0.5	<0.1	<0.02	<0.3	<0.05	<0.02	<0.05	
1146559	Rock	<0.5	<0.1	<0.1	<0.1	<1	224.9	<0.1	<0.2	2.3	<8	<0.5	1.3	<0.1	0.4	<0.1	<0.02	<0.3	<0.05	<0.02	<0.05	
1146560	Rock	<0.5	<0.1	<0.1	<0.1	<1	184.5	<0.1	<0.2	2.5	<8	2.4	0.4	0.1	0.6	0.3	<0.02	<0.3	<0.05	0.02	0.05	
1146561	Rock	<0.5	<0.1	<0.1	<0.1	<1	281.6	<0.1	<0.2	3.4	<8	<0.5	0.6	0.1	0.6	0.4	<0.02	<0.3	0.05	0.03	<0.05	



**Client:** Sonoma Resources Inc.  
 Suite 1100 - 1111 Melville St.  
 Vancouver BC V6E 3V6 CANADA

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**Project:** Century Limestone  
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Part: 3 of 4

# CERTIFICATE OF ANALYSIS

VAN14002778.1

	Method Analyte Unit MDL	LF200	LF200	LF200	LF200	LF200	LF200	LF200	TC000	TC000	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	
		Tb	Dy	Ho	Er	Tm	Yb	Lu	TOT/C	TOT/S	Mo	Cu	Pb	Zn	Ni	As	Cd	Sb	Bi	Ag	Au	
		ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb
		0.01	0.05	0.02	0.03	0.01	0.05	0.01	0.02	0.02	0.1	0.1	0.1	0.1	1	0.1	0.5	0.1	0.1	0.1	0.1	0.5
1146551	Rock	<0.01	<0.05	<0.02	<0.03	<0.01	<0.05	<0.01	13.36	<0.02	<0.1	0.6	<0.1	<1	0.9	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5	
1146552	Rock	<0.01	<0.05	<0.02	<0.03	<0.01	<0.05	<0.01	12.69	0.03	<0.1	0.9	0.2	<1	0.2	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5	
1146553	Rock	0.04	0.30	0.06	0.18	0.03	0.23	0.03	12.67	0.05	0.8	0.7	0.2	<1	0.2	1.7	<0.1	0.1	<0.1	<0.1	<0.5	
1146554	Rock	<0.01	<0.05	<0.02	<0.03	<0.01	<0.05	<0.01	12.86	<0.02	0.2	1.1	0.1	<1	0.2	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5	
1146555	Rock	<0.01	<0.05	<0.02	<0.03	<0.01	<0.05	<0.01	13.04	<0.02	0.2	0.3	0.2	<1	0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5	
1146556	Rock	<0.01	<0.05	<0.02	0.04	<0.01	<0.05	<0.01	12.69	<0.02	0.1	0.8	0.2	<1	0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5	
1146557	Rock	0.01	0.08	<0.02	0.05	<0.01	0.07	<0.01	13.06	<0.02	1.1	1.0	<0.1	<1	0.8	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5	
1146558	Rock	<0.01	0.06	<0.02	<0.03	<0.01	<0.05	<0.01	13.02	<0.02	0.4	0.8	<0.1	<1	1.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5	
1146559	Rock	<0.01	<0.05	<0.02	<0.03	<0.01	<0.05	<0.01	12.98	<0.02	<0.1	1.2	0.2	2	0.2	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5	
1146560	Rock	<0.01	<0.05	<0.02	<0.03	<0.01	<0.05	<0.01	12.61	<0.02	0.2	1.3	<0.1	<1	0.7	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5	
1146561	Rock	<0.01	<0.05	<0.02	<0.03	<0.01	<0.05	<0.01	12.79	<0.02	0.8	0.8	0.1	<1	0.8	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5	



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## CERTIFICATE OF ANALYSIS

VAN14002778.1

Method	Analyte	AQ200	AQ200	AQ200
		Hg	TI	Se
Unit		ppm	ppm	ppm
MDL		0.01	0.1	0.5
1146551	Rock	<0.01	<0.1	<0.5
1146552	Rock	<0.01	<0.1	<0.5
1146553	Rock	0.01	<0.1	<0.5
1146554	Rock	<0.01	<0.1	<0.5
1146555	Rock	<0.01	<0.1	0.5
1146556	Rock	<0.01	<0.1	<0.5
1146557	Rock	<0.01	<0.1	<0.5
1146558	Rock	<0.01	<0.1	<0.5
1146559	Rock	<0.01	<0.1	0.6
1146560	Rock	<0.01	<0.1	<0.5
1146561	Rock	<0.01	<0.1	<0.5



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# QUALITY CONTROL REPORT

VAN14002778.1

Method	WGHT	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200
Analyte	Wgt	SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	P2O5	MnO	Cr2O3	Ni	Sc	LOI	Sum	Ba	Be	Co	Cs	
Unit	kg	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	%	%	ppm	ppm	ppm	ppm	
MDL	0.01	0.01	0.01	0.04	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.002	20	1	-5.1	0.01	1	1	0.2	0.1	
Pulp Duplicates																					
REP 1146551	QC																				
1146558	Rock	1.82	0.38	0.04	0.10	10.51	44.70	<0.01	<0.01	<0.01	<0.01	<0.01	<0.002	<20	<1	44.0	99.79	2	<1	<0.2	<0.1
REP 1146558	QC		0.39	0.04	0.07	10.40	44.84	<0.01	<0.01	<0.01	<0.01	<0.01	<0.002	<20	<1	44.0	99.80	2	<1	<0.2	<0.1
1146560	Rock	1.43	0.45	0.06	0.61	19.88	32.08	<0.01	<0.01	<0.01	<0.01	0.07	<0.002	<20	<1	46.5	99.64	<1	<1	<0.2	<0.1
REP 1146560	QC																				
Core Reject Duplicates																					
1146551	Rock	3.84	0.23	0.05	0.09	19.08	33.88	0.01	<0.01	<0.01	<0.01	0.01	<0.002	<20	<1	46.3	99.63	<1	<1	<0.2	<0.1
DUP 1146551	QC		0.22	0.05	0.10	19.01	33.96	<0.01	0.01	<0.01	<0.01	0.01	<0.002	<20	<1	46.3	99.62	2	<1	<0.2	<0.1
Reference Materials																					
STD DS10	Standard																				
STD GS311-1	Standard																				
STD GS910-4	Standard																				
STD OREAS45EA	Standard																				
STD SO-18	Standard		58.08	14.20	7.56	3.39	6.30	3.70	2.16	0.69	0.78	0.40	0.550	44	24	1.9	99.73	485	<1	25.5	6.6
STD SO-18	Standard		58.15	14.11	7.64	3.38	6.32	3.67	2.14	0.69	0.78	0.40	0.546	42	24	1.9	99.74	487	2	24.2	6.1
STD GS311-1 Expected																					
STD GS910-4 Expected																					
STD DS10 Expected																					
STD OREAS45EA Expected																					
STD SO-18 Expected			58.47	14.23	7.67	3.35	6.42	3.71	2.17	0.69	0.83	0.39	0.55	44	25			514		26.2	7.1
BLK	Blank																				
BLK	Blank																				
BLK	Blank		0.02	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.002	<20	<1	0.0	0.05	<1	<1	<0.2	<0.1
Prep Wash																					
G1	Prep Blank		67.64	15.61	3.29	1.01	3.44	3.52	3.67	0.38	0.15	0.10	0.002	<20	5	0.9	99.74	952	3	3.9	4.9
G1	Prep Blank		67.77	15.39	3.27	1.00	3.38	3.42	3.68	0.38	0.16	0.10	<0.002	<20	5	1.2	99.74	955	<1	3.5	4.6

This report supersedes all previous preliminary and final reports with this file number dated prior to the date on this certificate. Signature indicates final approval; preliminary reports are unsigned and should be used for reference only.



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# QUALITY CONTROL REPORT

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Method	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	
Analyte	Ga	Hf	Nb	Rb	Sn	Sr	Ta	Th	U	V	W	Zr	Y	La	Ce	Pr	Nd	Sm	Eu	Gd	
Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
MDL	0.5	0.1	0.1	0.1	1	0.5	0.1	0.2	0.1	8	0.5	0.1	0.1	0.1	0.1	0.02	0.3	0.05	0.02	0.05	
Pulp Duplicates																					
REP 1146551	QC																				
1146558	Rock	<0.5	<0.1	<0.1	<0.1	<1	263.0	<0.1	<0.2	1.9	<8	<0.5	0.4	0.2	0.5	<0.1	<0.02	<0.3	<0.05	<0.02	<0.05
REP 1146558	QC	<0.5	<0.1	<0.1	<0.1	<1	257.3	<0.1	<0.2	1.9	<8	<0.5	1.0	0.4	0.7	0.2	<0.02	<0.3	<0.05	<0.02	<0.05
1146560	Rock	<0.5	<0.1	<0.1	<0.1	<1	184.5	<0.1	<0.2	2.5	<8	2.4	0.4	0.1	0.6	0.3	<0.02	<0.3	<0.05	0.02	0.05
REP 1146560	QC																				
Core Reject Duplicates																					
1146551	Rock	<0.5	<0.1	<0.1	<0.1	<1	505.8	<0.1	<0.2	2.9	<8	<0.5	0.9	0.1	0.4	<0.1	<0.02	<0.3	<0.05	<0.02	<0.05
DUP 1146551	QC	<0.5	<0.1	<0.1	<0.1	<1	523.3	<0.1	<0.2	2.9	<8	<0.5	0.4	0.2	0.3	0.1	<0.02	<0.3	<0.05	<0.02	<0.05
Reference Materials																					
STD DS10	Standard																				
STD GS311-1	Standard																				
STD GS910-4	Standard																				
STD OREAS45EA	Standard																				
STD SO-18	Standard	15.1	9.4	19.1	26.1	15	404.8	6.7	10.1	16.1	201	14.7	292.9	30.8	13.7	28.6	3.37	13.4	2.89	0.85	2.88
STD SO-18	Standard	16.3	9.0	19.3	25.8	15	398.0	6.6	9.9	15.2	201	13.5	288.4	29.7	13.5	27.1	3.24	12.6	2.95	0.88	2.85
STD GS311-1 Expected																					
STD GS910-4 Expected																					
STD DS10 Expected																					
STD OREAS45EA Expected																					
STD SO-18 Expected		17.6	9.8	19.3	28.7	15	407.4	7.4	9.9	16.4	200	14.8	290	29	12.3	27.1	3.45	14	3	0.89	2.93
BLK	Blank																				
BLK	Blank																				
BLK	Blank	<0.5	<0.1	<0.1	<0.1	<1	<0.5	<0.1	<0.2	<0.1	<8	<0.5	<0.1	<0.1	<0.1	<0.1	<0.02	<0.3	<0.05	<0.02	<0.05
Prep Wash																					
G1	Prep Blank	16.3	3.6	22.4	126.5	1	733.8	1.3	9.4	3.4	51	<0.5	134.2	15.7	31.3	59.7	6.51	24.1	4.21	1.02	3.41
G1	Prep Blank	16.1	3.7	21.4	130.0	1	712.9	1.4	9.0	3.2	48	<0.5	141.4	15.3	29.9	58.8	6.38	24.4	4.12	1.02	3.26



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# QUALITY CONTROL REPORT

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Method	LF200	LF200	LF200	LF200	LF200	LF200	LF200	TC000	TC000	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	
Analyte	Tb	Dy	Ho	Er	Tm	Yb	Lu	TOT/C	TOT/S	Mo	Cu	Pb	Zn	Ni	As	Cd	Sb	Bi	Ag	Au	
Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	
MDL	0.01	0.05	0.02	0.03	0.01	0.05	0.01	0.02	0.02	0.1	0.1	0.1	1	0.1	0.5	0.1	0.1	0.1	0.1	0.5	
Pulp Duplicates																					
REP 1146551	QC							13.08	<0.02												
1146558	Rock	<0.01	0.06	<0.02	<0.03	<0.01	<0.05	<0.01	13.02	<0.02	0.4	0.8	<0.1	<1	1.1	<0.5	<0.1	<0.1	<0.1	<0.1	
REP 1146558	QC	<0.01	<0.05	<0.02	<0.03	<0.01	<0.05	<0.01													
1146560	Rock	<0.01	<0.05	<0.02	<0.03	<0.01	<0.05	<0.01	12.61	<0.02	0.2	1.3	<0.1	<1	0.7	<0.5	<0.1	<0.1	<0.1	<0.1	
REP 1146560	QC										0.2	1.5	<0.1	<1	0.4	<0.5	<0.1	<0.1	<0.1	<0.1	
Core Reject Duplicates																					
1146551	Rock	<0.01	<0.05	<0.02	<0.03	<0.01	<0.05	<0.01	13.36	<0.02	<0.1	0.6	<0.1	<1	0.9	<0.5	<0.1	<0.1	<0.1	<0.1	
DUP 1146551	QC	<0.01	<0.05	<0.02	<0.03	<0.01	<0.05	<0.01	12.91	<0.02	<0.1	0.3	<0.1	<1	0.8	<0.5	<0.1	<0.1	<0.1	<0.1	
Reference Materials																					
STD DS10	Standard										12.6	134.1	146.6	346	72.9	44.3	2.4	8.1	11.5	2.0	65.2
STD GS311-1	Standard							1.00	2.39												
STD GS910-4	Standard							2.62	8.22												
STD OREAS45EA	Standard									1.4	660.3	13.9	27	369.4	9.4	<0.1	0.2	0.2	0.3	53.1	
STD SO-18	Standard	0.49	2.93	0.66	1.92	0.30	1.83	0.31													
STD SO-18	Standard	0.48	2.85	0.65	1.90	0.28	1.84	0.28													
STD GS311-1 Expected								1.02	2.35												
STD GS910-4 Expected								2.65	8.27												
STD DS10 Expected										14.69	154.61	150.55	370	74.6	43.7	2.49	8.23	11.65	2.02	91.9	
STD OREAS45EA Expected										1.39	709	14.3	28.9	381	9.1	0.02	0.2	0.26	0.26	53	
STD SO-18 Expected		0.53	3	0.62	1.84	0.27	1.79	0.27													
BLK	Blank							<0.02	<0.02												
BLK	Blank									<0.1	<0.1	<0.1	<1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5	
BLK	Blank	<0.01	<0.05	<0.02	<0.03	<0.01	<0.05	<0.01													
Prep Wash																					
G1	Prep Blank	0.49	2.68	0.60	1.78	0.29	1.90	0.33	0.03	<0.02	0.1	2.4	3.3	42	2.2	<0.5	<0.1	<0.1	<0.1	1.7	
G1	Prep Blank	0.47	2.78	0.55	1.58	0.27	1.85	0.31	0.02	<0.02	<0.1	3.1	3.2	44	2.3	<0.5	<0.1	<0.1	<0.1	0.6	



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# QUALITY CONTROL REPORT

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Method	AQ200	AQ200	AQ200
Analyte	Hg	Tl	Se
Unit	ppm	ppm	ppm
MDL	0.01	0.1	0.5
Pulp Duplicates			
REP 1146551	QC		
1146558	Rock	<0.01	<0.1 <0.5
REP 1146558	QC		
1146560	Rock	<0.01	<0.1 <0.5
REP 1146560	QC	<0.01	<0.1 <0.5
Core Reject Duplicates			
1146551	Rock	<0.01	<0.1 <0.5
DUP 1146551	QC	<0.01	<0.1 <0.5
Reference Materials			
STD DS10	Standard	0.29	5.0 2.4
STD GS311-1	Standard		
STD GS910-4	Standard		
STD OREAS45EA	Standard	<0.01	0.1 0.6
STD SO-18	Standard		
STD SO-18	Standard		
STD GS311-1 Expected			
STD GS910-4 Expected			
STD DS10 Expected		0.3	5.1 2.3
STD OREAS45EA Expected			0.072 0.6
STD SO-18 Expected			
BLK	Blank		
BLK	Blank	<0.01	<0.1 <0.5
BLK	Blank		
Prep Wash			
G1	Prep Blank	<0.01	0.3 <0.5
G1	Prep Blank	<0.01	0.3 <0.5



## Appendix II: Lab Methodologies



## METHOD SPECIFICATIONS

### GROUP 4A & 4B – LITHOGEOCHEMICAL WHOLE ROCK FUSION

<b>Package Codes:</b>	<b>4A, 4B</b>
<b>Sample Digestion:</b>	<b>Lithium metaborate/tetraborate fusion</b>
<b>Instrumentation Method:</b>	<b>ICP-ES (4A), ICP-MS (4B)</b>
<b>Applicability:</b>	<b>Sediment, Soil, Vegetation, Moss-mat, Non-mineralized Rock and Drill Core</b>

#### Method Description:

Prepared sample is mixed with  $\text{LiBO}_2/\text{Li}_2\text{B}_4\text{O}_7$  flux. Crucibles are fused in a furnace. The cooled bead is dissolved in ACS grade nitric acid. Loss on ignition (LOI) is determined by igniting a sample split then measuring the weight loss. Total Carbon and Sulphur are determined by the Leco method (Group 2A).

Element	Group 4A Detection	Upper Limit
$\text{SiO}_2$	0.01 %	100 %
$\text{Al}_2\text{O}_3$	0.01 %	100 %
$\text{Fe}_2\text{O}_3$	0.04 %	100 %
$\text{CaO}$	0.01 %	100 %
$\text{MgO}$	0.01 %	100 %
$\text{Na}_2\text{O}$	0.01 %	100 %
$\text{K}_2\text{O}$	0.04 %	100 %
$\text{MnO}$	0.01 %	100 %
$\text{TiO}_2$	0.01 %	100 %
$\text{P}_2\text{O}_5$	0.01 %	100 %
$\text{Cr}_2\text{O}_3$	0.002%	100 %
LOI	0.1 %	100 %
C	0.01 %	100 %
S	0.01 %	100 %

Element	Group 4A Detection	Group 4B Detection	Upper Limit
Au	-	0.5 ppb	100 ppm
Ag	-	0.1ppm	100 ppm
As	-	1 ppm	10000 ppm
Ba	5 ppm	1 ppm	50000 ppm
Be	-	1 ppm	10000 ppm
Bi	-	0.1 ppm	2000 ppm
Cd	-	0.2 ppm	2000 ppm
Co	20 ppm	0.2 ppm	10000 ppm
Cs	-	0.1 ppm	10000 ppm
Cu	5 ppm	0.1 ppm	10000 ppm
Ga	-	0.5 ppm	10000 ppm
Hf		0.1 ppm	10000 ppm
Hg		0.1 ppm	100 ppm
Mo		0.1 ppm	2000 ppm
Nb	5 ppm	0.1 ppm	50000 ppm
Ni	20 ppm	0.1 ppm	10000 ppm
Pb		0.1 ppm	10000 ppm
Rb		0.1 ppm	10000 ppm
Sb		0.1 ppm	2000 ppm
Sc	1 ppm	-	10000 ppm
Se		0.5 ppm	100 ppm

Element	Group 4A Detection	Group 4B Detection	Upper Limit
Sn	-	1 ppm	10000 ppm
Sr	2 ppm	0.5 ppm	50000 ppm
Ta	-	0.1 ppm	50000 ppm
Th	-	0.2 ppm	10000 ppm
Tl	-	0.1 ppm	1000 ppm
U	-	0.1 ppm	10000 ppm
V	-	8 ppm	10000 ppm
W	-	0.5 ppm	10000 ppm
Y	3 ppm	0.1 ppm	50000 ppm
Zn	5 ppm	1 ppm	10000 ppm
Zr	5 ppm	0.1 ppm	50000 ppm
La	-	0.1 ppm	50000 ppm
Ce	30 ppm	0.1 ppm	50000 ppm
Pr	-	0.02 ppm	10000 ppm
Nd	-	0.3 ppm	10000 ppm
Sm	-	0.05 ppm	10000 ppm
Eu	-	0.02 ppm	10000 ppm
Gd	-	0.05 ppm	10000 ppm
Tb	-	0.01 ppm	10000 ppm
Dy	-	0.05 ppm	10000 ppm
Ho	-	0.02 ppm	10000 ppm
Er	-	0.03 ppm	10000 ppm
Tm	-	0.01 ppm	10000 ppm
Yb	-	0.05 ppm	10000 ppm
Lu	-	0.01 ppm	10000 ppm

Note: Highlighted elements by 1DX Aqua Regia – ICP-MS analysis

## Appendix III: Mineral Claim Exploration and Development Work Form

## Appendix IV: Additional Maps

Century Limestone 2014 Sampling Report

